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CHEVROLET



On the Wings of Innovation: Lufthansa First with FlyNet™ Broadband

Business travel is buzzing with news of Lufthansa's relaunch of their FlyNet in-flight broadband Internet service. We talked with Lufthansa VP of Product Management and Innovation Christian Koerfgen to get the scoop on their sky-high WiFi:



You're bringing FlyNet back. How is it different from what is already out there? This is an industry first-no other airline offers FlyNet broadband Internet access on intercontinental flights. While this service will now provide

the same high-speed Internet access as before, in 2011, in-flight data transfer and SMS messag ing over standard GSM/GPRS mobile networks will also be possible.

Why the extra step of offering GSM/GPRS connectivity instead of the usual WiFi? With the integration of GSM/GPRS, customers will soon be able to use smartphones or mobile phones in addition to laptops.

Does this mean the cabin will be full of people chatting on their cell phones? No, in response to customer feedback, voice telephoning will remain technologically blocked. Of course, on board phones are still available for use in the galleys if needed.

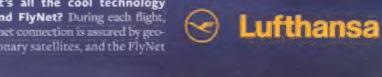
Can anyone on board a Lufthansa flight use the new service easily? FlyNet is impressively user-friendly. Throughout the entire niveraft cabin, the passenger can log on with any WiFi- or GSM/GPRS-enabled device, just as at any public hotspot.

Many business travelers work with sensitive information. How secure are data transfers and email on Fly-Net? The connection provides the same security standards as public hotspots.

What's all the cool technology behind FlyNet? During each flight, Internet connection is assured by geo-

navigation system on each aircraft directs the on board antenna electronically to the correct satellites, ensuring uninterrupted in-flight connection. At a flying speed of about 550 miles per hour, the position of the satellites at a beight of 22,000, miles and the chang ing pitch require a very challenging and sophisticated coordination of all components.

What does Lufthansa offer the business traveler that no other airline does? Our business travelers demonstrate a key need to stay connected, and Lufthansa is the first and only airline to offer FlyNet broadband Internet access in the skies. This service completes the standardized communications products for Lufthansa passengers throughout the entire travel chain,









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TO A FUNDAMENTAL SHIFT

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TO SEEING THE INVISIBLE

TO ATTEMPTING THE IMPOSSIBLE

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TO OUTS DE THE BOX

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TO TAKING SMALL STEPS

TO BEING AHEAD OF OUR TIME

TO CELEBRATING THE VISIONARIES WHO MOVE US ALL FORWARD



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101 Wish List 2010

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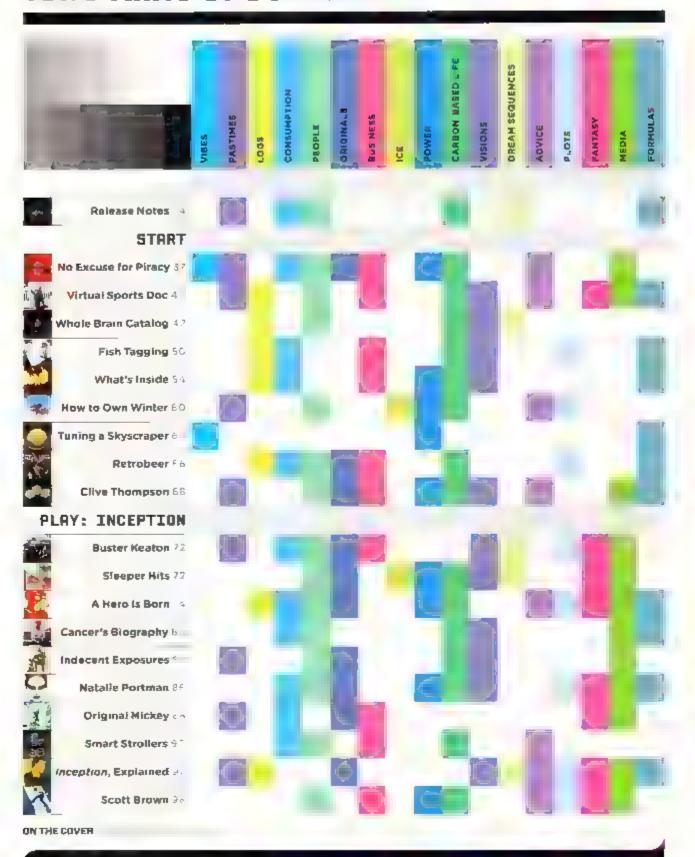
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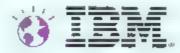


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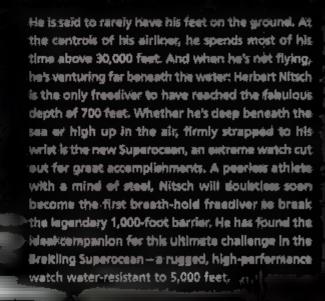
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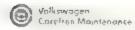


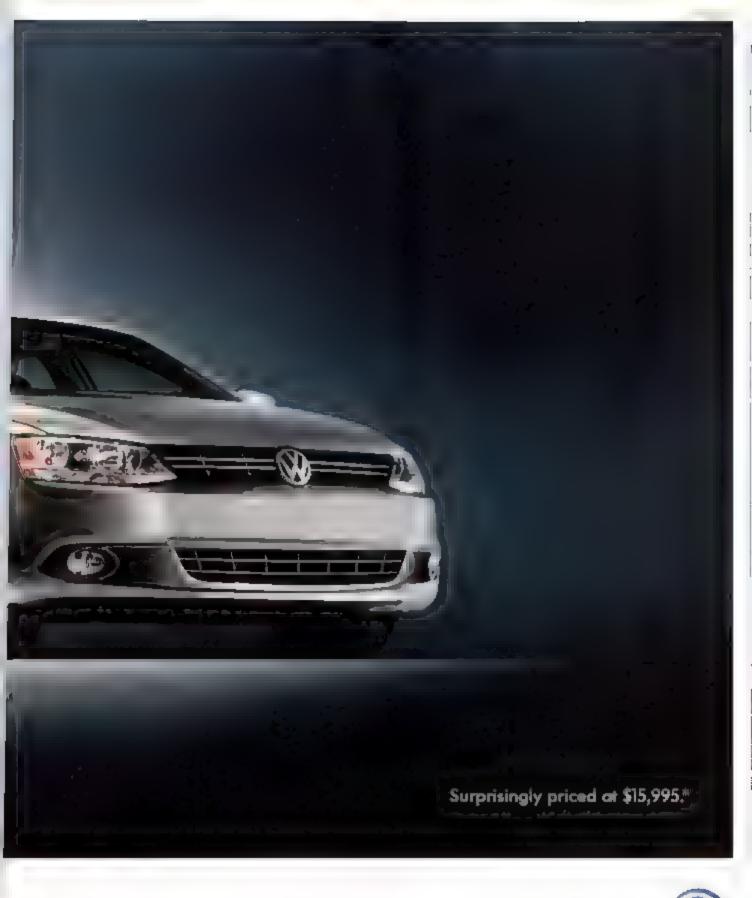
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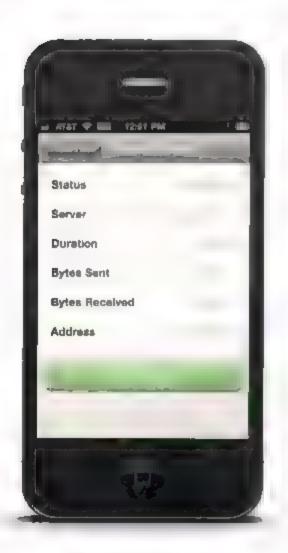
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COVERLINE

Keen abservers of the wikno coverever*he past few years may have naticed he labor of color that winds from the spine to the from of the magazine It scalled he wrong har and " shart to a con Lept dubbed Wrung The-ory perfect a design, then make one wrong move explains outgoing creative directors to bit Jadich. It's afte i done i ul tension adds Darligh, wan was recently apped blead Conda Nesi sidigital mag azine efforts. We'll add a color that is intentionally hantile in what sinther wise a pleasing design or make type collide. For this month's ball design director Wyar, Mirchell chose a gradien. Zoinkei



RE: The New American Car Company

"Wes weepy-eyed after reading your story on Tesla Motors," wrote @ericmwong on Twitter responding to "Supercharged" by Joshua Davis, issue 18 10). "Makes me want to climb to the summit of the American dream Truly inspirationa." As the comment suggests, Tesla founder Elon Musk's success as a serial entrepreneur. Pay Pa. SpaceX, moved many readers. "Elon Musk is the new Richard Branson," raved @mcconaghy on Twitter Dan Haggarty.

of Toronto declared that Musk's career offers "a glimpse of American ingenuity at its best," (Even though Musk is South African.) But Haggarty had a critique, too: "The article offered only the most oblique reference to the ourrent Achilles heal of a cars—charge rate." he wrote. "An idea electric car would need to charge at a lave 100 times the amp service of a typical home. Electric cars may be in our future, but without a solution to to the recharging elephant in the room they'll only be a niche product for an urban elite."

Ago from Toronto **Calvin Schnurr** offered: "Neatly tucked away in the piece is the point that more electric cars will drive electricity demand. "dien by reading an article about how



that demand would be met, or whether it in fact can be. Even an electric car isn't a silver bullet for North America's energy limitations. Figure that out, then maybe wised can task about the arrival of a new age."

There was a so concern about Musk's ability to build Tes a Motors into a main stream carmaker. "History is not in his favor" noted **MWILK** on Wired.com. "How many successful car companies have been started from scratch in the past

30 years? Suilding a clever prototype is one thing, maesproducing this quite another More power to Musk if he makes this work, but i wouldn't bet your kid's college fund on Teere."

Then came the outright naysayers. On Wired.com, **BORI- QUAJAKE** called the piace "more shamaless fluff for what is essentially a grant tax write-off." Others complained about the cost of the Teals cars. "They left some words out of the title it should say. Really Expensive Luxury Car Company of the Futurs, "wrote **CARLSPEARDW** Let's be fair. The Mode Sisterts at \$49,000. Not rihesp, but not totally quitrageous in our book, a really expensive luxury car is a Bentley Continental Supersport. Sticker or ce: \$257,000.

18.12 Rants

RE "SURVIVAL GUIDES (PLAY, SSUE 16 10)

"IT'S A GOOD IDEA TO HAVE LOTS OF BOOKS FOR THE APOCALYPSE. YOU CAN ALWAYS BURN THEM FOR HEAT, ASSUMING YOU HAVE A LIGHTER."

Exclusives romacomm in posted by William by BARIL OWN



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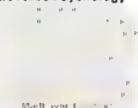
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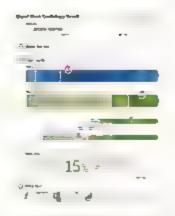


Magnets-We Know How They Work

LATELY WE UE BEEN OBSESSED with Buckyballs, those timy magnets that can be worked into almost any shape though some prefer competitor Zen Magnets. Editorial operations manager Jay Dayrit is the office Buckyballs master. His many creations (examples, above right, put the rest of us to shame. Turns out New York-based photographer Spencer Higgins is a fan as well. He was hired to model and photograph molecular structures, above left, for John Bohannon's "Building a Parallel Universe" about backing DNA to grow a timeror image of life on Earth ipage 2065. "I thought about ions of different materials—glass, styrofoam—before I hat upon Buckyballs," Higgins says. "I we never worked in that medium before."

Test Results

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ark down the date The age of stealing music via the internet is officially over It's time for everybody to go eg.t. The reason. We won And an you madrophy es and copyfighters, you know who fixed our problems? The record labe is and on the stores we loved to hate " Granted, when Apple .a. nched the . Tunes Masic Store in 2003 there was a lot to complain about Tracks you bought on computer A often refused to play on gadget B. thanks to that old netizen bogeyman, digital rights management. (It's crippleware') My local Apple store was actually picketed by nerds in hazmat suits attempting to educate passersby on the evils of DRM . steat ion Brock Davis

Wen played, protesters. In January 2009, Apple announced that it would remove the copyright protection wrapper from every song in its store. Today, Amazon and Walmart both sell music encoded as MP3s, which don't even have hooks for copyright protection locks. The battle is over comrades.

A few years ago, and ophiles dis-

Music is so chead.

there's no reason

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missed (Tunes' 128 Kbps resolution as anem,c, even though it supposedly passed rigid blind testing against fill bandwidth CD tracks of the same song. The sound is compressed corno asseurs sold. The high end is mangled. Good work appropriate Conline sores have counted up

the sudio quality to a fat 256 Kbps. To most ears, it's indisting a shable from a CD. Actually, most ears are ilstening through crummy earbuds anyway, but whatever, it scertainly better than most of the stuff out on BitTorrent. If youst—hate the sound of digital music, you probably need to go back to viny. You can ge in prefly good turntable for around \$500. Which I must poin out is not free And when you's carry pyrecerds, it called shop if ing.

Haiers might get a hit more traction. with the gripe that official stores st.l. don't carry every rack ever recorded You won't fine say, AC, DC or the Beatles. in Tunes For other artists, contract restrictions mean some sougs can't be downloaded in every country, which indeed seems dumb for a slore on the border reeinternet Americans, for example, can't buy Dantel Zueras' 2007. Spanish hit "No Quiero Enamorarme" from the Tunes store for Spain, Still the ava. able inventory keeps growing including artists back ou a ogs-I roce if y discovered that Salt City Orchestra's amited-edition, vinyl-only 1997 nightclub fave "The Book" has been kicking around (Tunes 5 nce 2008, Way back in the day. I had to trade favors with a pro Duto ge, that record, it's getting

harder and harder to find the few holdouts to hang a reasonable complaint on.

That leaves one ast war cry Music should be free! It's art! Friends, a song costs a dollar. Walmart has pushed some of its MP3s down to 64 cents. At Grooveshark, you can sample any song you want before you buy Rdio charges \$5 a month for an the music you can eat.

served up via the cloud

So there's really no reasonnot to buy—and surely you understand by now that there are reasons why you should. When you buy instead of boot egging you re paying the baild Most down oad realliers sold about 70 percent of each sale to the record

companies that own the mosic. Art ists with 15 percent royalty deals get 15 percent of that 70 percent, or about 10.5 cents per dollar of saies. Those who write the rown music and own that own music pub ishing companies—

an increasingly common arrangement get another 9 1 ccn is in "mechan co roya ties" Every down odd sends a most 20 cents stroight in the band

A recen court ful ing against on versa.

Records - and in favor of the rapper Eminem—in whit even lead to down loads of older music being treated not as sales but as idensed music. Newly written contracts, lend to address digital music sales directly. That would hamp the artist's split with the label from around 15 percent to an average of 50 percen. If that happens and you can still rational zenot throwing four dimes Eminem's way, then may be there's another reason you're still piroting music: You're cheep.

PAUL BOUTIN paudout niàmac com, wrote about retting small investors in on pre IPO dears in issue 18.07



Land of the Rising Disc

Washed up hair metal bands aren't the only thing that a stilling in Japan. The aging CD for hat is faring he terthere as well despise have a may about as he US. The same openies he would a number one market for music CDs, with a name, physical media sales of \$3 his ion (compared to \$2.6 historistates, der Kere's why plastic discs are hanging on in Japan. — William Mochberg

UPSELL NO

For what willing to shar our chormous human in a conjuming the aging \$50 kb Matsurin his our sinise 15 for a law-dropping \$100,000 \$200;

REPLACHASING

Remiaded your CPs with CDs? Now you dan replace hose in turn with a new line of caraboald leasties. Curs packaged its iff parks which index fear work.

RENTALS

Chains like Tsulaya he Block buster of latian remit Chais will as DVDs Eviry suits her is to buy a hear hy stock of his discs. (They all pay copyright royal light too.)

EXPENSIVE DOWNLOADS

Times baseling for singles is \$150 (\$ 80 but Apple has less than 10 percent of the marke. Many for vices charge \$300 \$3.67 and up

LESS P RACY

the rell phone into the PC is help imary music downloading doving historian and is ough dige 8 fforcers on a DoCoMo



MEDIANE PORTARN CHILL: 100 MILLION FED EGG 30 MILLION / BLHERIUN TO THE CLUSES 30 MILLION THICHMANTER: 10 MILLION ARROY CHOR I MILLION THE SHOULD A MILLION OF SUPER CHOR I MILLION OF SUPER CHOP I MILLION

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Arpha geek Stephania Bett

Doc for Fake Jocks

An orthoped cispec is storovides real medical analysis for fantasy sports teams

If Saints quarterback Draw Brees should develop a case of tene into the rain ficultons would be enormous, and not ast for his team's apcoming football games, it would also rock the may one of fantasy football games that Brees is stated to play in Like their real world counterparts, virthat fear timers near time was here bank her some an ingles are in red and low long recovery will take But he in its reports has bean sireleasy are vague beons. plete and full of sp.n.

That's whore Stephania Bell comes in, Switch on ESPN3. or surflover to ESPN.com before kickoff and you'll see the retwork spitic of impasy sports in a nesting yet dispensing "yperdetailed prognoses that help armichair lierry Toneses." reagger the prosters Re. an inthoped rich most special ast with 19 years of sports, medicine experience, was just a run-of-the-rul, fantasy footbal, fan five years ago. But she took advantage of her expertise to scrutinize footage of injuries and decipher the official reports.

This turned into a series of articles on enthusiast sites and commentary on XM radio sports shows. Then she was called up to the majors. Now she does regular stand-ups on ESPN's Fantasy Footbate Now and blogs for the net work about the finer points of Reggie Bush's fractured

fibula. Sports (ansignore her diagnoses at the open secon **Удогонд усыг пондагагу авенр** based on her fust mety conceally pay off Take last season, when At anta Farcons running back Michael Turner saffered a bigha tale sprain but was back on the field in two weeks, "There was no way be was fully recity ered," she says and told view ers as much "R prime backs take a not of stress through the ankles and Turner's a stoat powerful guy. I knew he was going to be in trouble, and he was " Sure enough, Turner underperformed in his first game back, got hurt again, and was taken out. He should have spent less time listen ag to his trainer and more time watching. cable TV. AMANDA SCHUPAK

Hygroelectricity

A Hower contented minor Bridge арритр ільо слаград lė lulis AR 5 4 74 74 74 1 Divide to or Balmon the done by participation كشك معروضة المواان A RESPONDENT HOLDOSIV damagnini ja u vot numbers orms

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UNTRODUCING MOVADO BOLIP"
WATCHES WITH A NEW ATTITUDE,
INFRIGIZED BY COLOR, MOVADO, COM-

MOVADO THE ART OF DESIGN

Free Brains

A videogame angine gives everyone access to footage of neurology in action.

> Mearum Heing In the deptate greats

Huris Milimber Worlds neuroclantists to share. Typically, they: don't: Data on brain shactures, painetalingly necumulated using neuroimaging tectnologies and dispositions, usually indemps to individval researchers, laiss,

and journals. So Effermen, a neutroclertist at UC San Diego, started working on the Whole Brain Catalog, an open source, open-escase detabase of mouse brain imagery. Think of it so Google Earth for rodent neurology—if Google Earth were based on a videogame angine and could goom from the scale of a continent to a ladybug. "That's the range we traverse, but in 3-D," Ellisman says.

Commissed the software and you get visualizations and videos ranging from the structure of the entire brain to individual neurons. And many of the randers link to the shee shall hippy're built from, like the many well-funded) After Brain Allas or the heuroscience information Promovers, run by the Mational Institute of Health, A handful of labs have also sanetyd their work—the Solik insultate's read Gage contributed a 2-O almulation of from coli growth in adult mice, and Ellisman's beam adjusted the paoing to run in real time, eventually pasting it to the catalog as a "4-O almulation."

Today the database totals 3,595 images:
land videos, including recently added
Minus of the ratios and aptical recys. A
potate new version of the WBC is due out
angine—(t's laws Henley, the underplanting
of a bunch of addictive wab games—will
as outh many. Nothing brings a recearch,
tab begather like a file though of the hipmanages in first mode. —Millions Caylin



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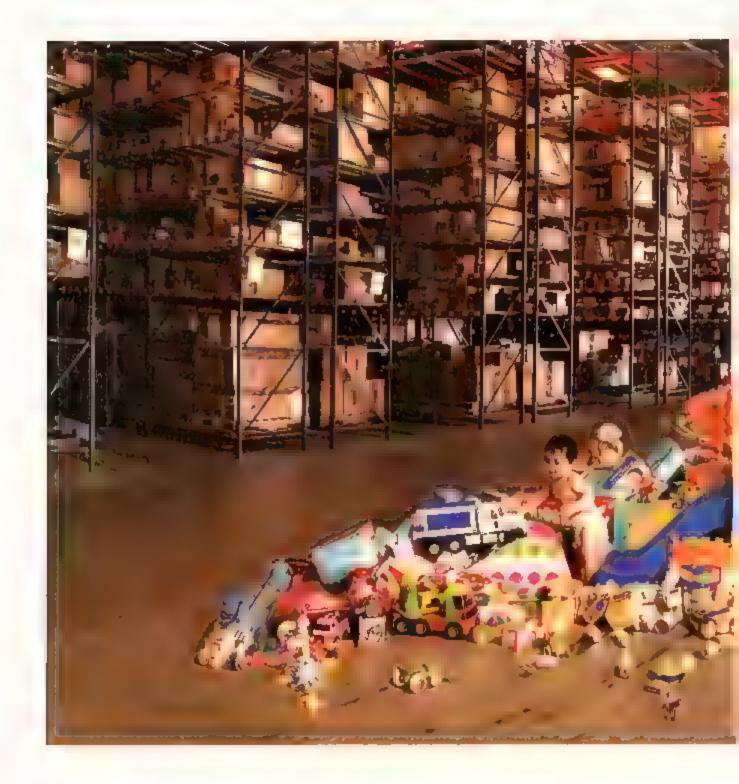
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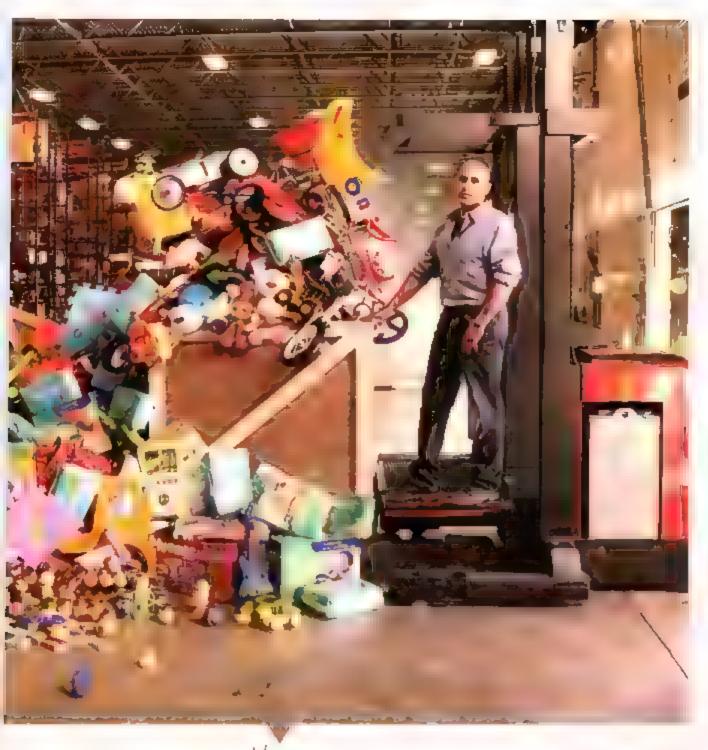
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DEAR MR. KNOW-IT-ALL

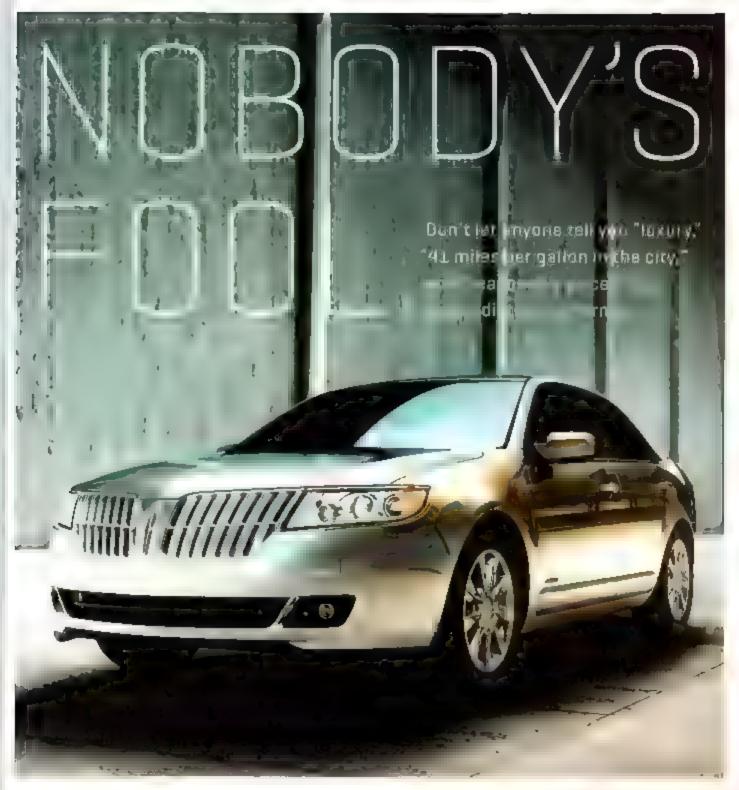
My pregnant wife and I live in an old house that contains lead paint and lead pipes. My mother-in-law insists that we move. Should we?



SECOND CHANCES are as American as monster trucks and deep fried Coke. Just look at the popularity of Celebrity Rehab. According to your mother-in aw though, old build ngs don't deserve the same sho at recemption as Heid) Piejss. Shu or reves that untique abodes can never be revials, tated in a matter how much money you pour into ren. ovetions. 4 There's a grain of truth to her logic: Try as you sught, you can never make your house entirely lead free. But in her zee, to protect her anborn grandel d's brain, your mother-in law has erroneously assumed that the mere presence of lead guarantees tragedy. "The thing you really need to look out for is any peeting or chipped point or any dust around windows ha." says Anne Turner-Henson, a professor at the University of Alabama at Birmingham School of Nursing where P

JATABTREAM YEARS IN WHICH DYSTOPIAN FILMS ARE SET

ANIAR: 2019 BLADE RUNNER 2019 CHZLDREN OF MEN 2027 DEMOLUTION MAN: 2022 ESCAPE FROM MEL YORK: 1887 DOIDCRACY: 2505 DOHNAY MAGNOKIC: 2021
METHOPOLIB: 2027 / NOMERITY REPORT: 2024 / 1884 LEVEN 2



tis not ust usury its smarter than that learn more about the 2011 Lincoln MKZ Hybrid the most fuer efficient use y (arin Amelia at



IMPOLE POL

▶ she focuses on youth health. If you can repaint the place, or at least hire cert fied professionals to address those problem areas, then all should be fine intact lead paint isn ta hazard, especially fit's sealed beneath layers of nontoxic stuff. As for the pipes, get your water tested if it's unsafe investing reverse-osmosis purification machine put in new pipes, or commut to buying bot.

tled water by the truckload.
Sogo ahead and ignore your
mother-in law, but be sure to
remain vigilant. Once the kild
drops. You should regularly
check for flaky paint and suspic ous dust, and make sure
your pediatrician tests your

progeny for lead at regular

intervals. Too lazy for that regimen? Then perkaps you'd better start looking for shelter built after the Carter administration.

I spend almost all my phone time on my cell these days, so I'm tempted to cancel my landline. But will I rue that decision when disaster strikes? I'm worried that the mobile network will get knocked out.

There's a reason to be wary of ditching your land ine, but it has nothing to do with reliability. Cell towers are now robust enough to stand up to Mother Nature's bullying. "As we saw after the Hart earthquake, mobile networks are building up their resiliency " says Craig Fugate director of the Federal Emergency Management Agency "People were using cell phones to stay in touch."

What should give you pause is the fact that unlike and ines, cell phones don't automatically provide 9:1 operators with your home address. That could be a problem if you ever need help but can't talk.

say if you're in the midst of a beart attack or you're hiding macloset because your house has been overrun by cyborg assess ns.

In such cases, the authorities might still be able to track you down (depending on your mobile carrier) asing GPS

or—provided you re within range of three cell towers—triangulation. You may a so be able to register your cell number and address with local emergency services though that can couse confusion if you dialout.

So is it worthwhile to keep a landkine? If you're young and healthy, several hundred bucks a year may seem steep for peace of in iid. Maybe you'd do better to spend the cash on something that il nim in: ze your odds of ever needing 911 in the first place. A gym membersh picou dihelp stave off a heart attack for example. And a spike filled moat might frustrate the cyborgs.

As part of an ongoing midifie crisis, i'd like to pursue my childhood dream of flying around with a personal jetpeck. How can I accomplish this? Do I need FAA clearence?

There is surprisingly little red tape between you and a rocket bed. Assuming that what ever unit you get your hands on weighs no more than 254 pounds, carries 5 gallons or ess of five, and zooms forward at no more than 63 miles per hour the FAA will consider it an ultraught vehicle. That means you don't need a license to operate it you just need to obey certain regulations, like avoiding populated areas and confiding your flights to dayinght hours.

The real trick here isn't satisfying the bureaucrats but rather coming up with the hardware. A few companies have vowed to startisely agoiff-the shelf jetpacks in the not too-distant future, for prices starting around \$.00,000 but their plans always seem to encounter delay after delay.

Of course, you could always build your own. Do you have a strong background in serospace engineering and a garage full of advanced fabrication tools? If not consider scaling back your dreams just a tad. There is no shaine in parasa, ling, III

Need neip navigating infe in the 21st century? Email us at mrknowntall glywired.com



Tattoo Detectives

Cover up That body art could give away Crooks may wear gloves and masks to hide their identity, but fewithink to cover their ink. If there is a video record of a crime copsical sometimes use exposed tats to identify a perploratlieast his gang affiliation. But trying to match a specific piece of inxwork against a vast photo database has been like searching for an image on Altavista in 1998. Police have relation archaic keyword tagging ("anima" if female face "and that oid

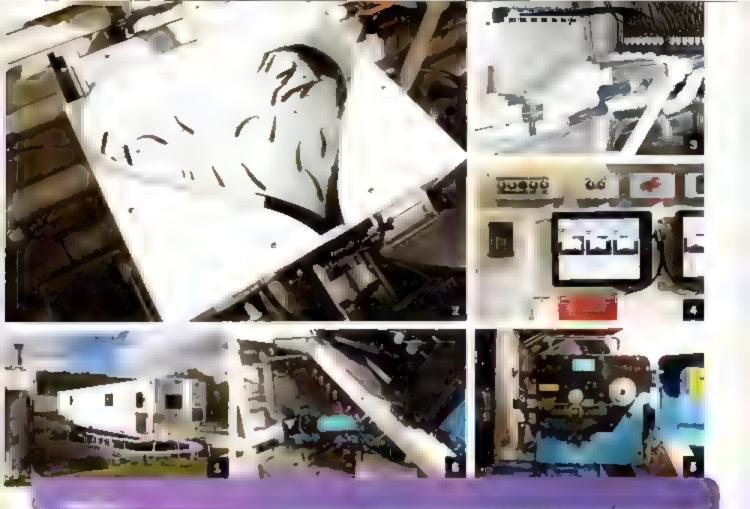
favorite "other") it doesn't work very well says Michigan State University biometrics expert Ani Kilvain, who received FB funding to develop an alternative fentative y called Tatroo iD Jam's software quickly compares a suspect stattoo (in-resisources ike surveillance footage or a cop's phone cameral work line) with tensiof thousands of tattoos from known or minals, ike fingerprint. O software it works by matching to tale visual features in the images them serves. The tech has been idensed by a firm called MorphoTrak, which will start betaltesting it with state and occluding the mages them shad better investing some long's eeve turtienecks. —Marina Krakovsky

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Like Tagging Fish in a Barrel

The a Signer ment's fish tagging operations used to be a diskerts into gence gathering slow impresses and icclisionally responsible for the torture and decision for more the Fish and York for some relationship to the Fish and York for a more than the many sensors cameras and a 10 power a gor thing the diskert second and a first the Market Each Side of the action of the market first tag the market for the same action of the market first tag the market for the same action of the market for the tags with tags with the tags with tag

privide (sherry managers with comprehensive data than'll help hemboustiow populations avido versioning and even satisfy Native American trea vido, gations, Here's how works in a Mark it has a kerry take kill.



1 INTAKE

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2 FORMING A LINE

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5 TAGGING

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6 VER F CATION

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Smarter business for a Smarter Planet.

What 3 million lines of code means to a piece of luggage.

t means Amsterdam Airport Schiphol will be able to accurately and efficiently move 70 million pieces of luggage per year 20 million more bags per year than they used to. The airport's automated baggage solution will allow them to increase their baggage handling capacity by 40% so they can meet the growing demand piaced on them as one of Europe's largest transport hubs. This system is built on BM Rational* and Tivoli* software and runs on Power Systems* A smarter business is built on smarter software, systems and services.

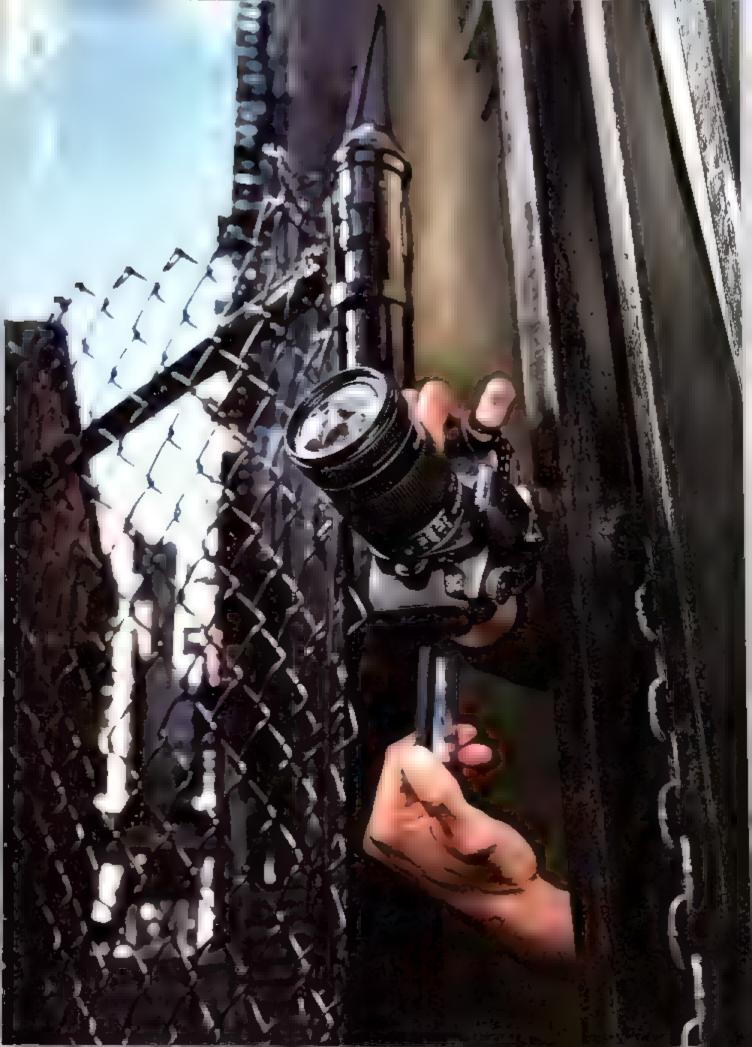
Let's build a smarter planet lbm.com/luggage





traffic at Amsterdam Airport Schiphol

Service are made of interface in fight and contract in the contract of interface in the contract of the contra





Canon

Birdseed Popping on an Open Fire

WHAT'S INSIDE PARTY AND THE PARTY PA

BIRDSEED

Natural logs (espacially pine) crackle:

oils in the wood reach their boiling points. To duplicate this effect, some fire logs contain a little birdsead (hemp, millet, cortander, offex), which is also prone to pop when burned.

METALLURGI-CAL COKE

Coal with its voistile components water, gases, coal tar—baked away. It can be ground into 4-mm particles that sputter when the

HOLLOW

ceramic, or polymer orbs are heated, enormous pressuri builds up from the little bit or moisture, or air inside. Eventually the outer shells explace—justlike hirdsaed.

PARAFFIN

About half of the weight of a firelog is wax, usually inexpensive petroleum-based paraffin. It serves as a fuel, a binder for the other ingredients, and a structure for the log

you're burning a. giant candle: ____

WOOD PARTIELES

real plant cellulose, (Duraflame started as a way for California Cedar Products to make use of leftower sawdust,)
Typical cellulosic

bark, cardboard, peanut shells, or coffee grounds,

NON-PETROLEUM WAXES

Some newer fire logs claim to be sustainable. They still use way, but

use wax from rain

naubo), pina traes (tali oli, a liquid rosin), ot animals (tallow).

LITHIUM CARBONATE

Flames make electrons absorb energy, jump to a higher orbit, and then come crashing down, emitting

Burning LI₂CO₂ creates flames at a wevelength that we parceive as an exotic red.

POTASSIUM CHLORIDE

sidewalk-ice melter, and the "lethal" part of a lethal injection, KCI burns with a delicate blue-violet flame,

COPPER CHLORIDE/ COFFER CARBONATE

Gasks who etch circuit boards swear by CuCl, coating on old pennies. The copper ejectrons in both

electrons in both smit electric blue, Patrick Di Justo;

Morris Tim Marris











Science for All

The institutions that foot the bill for scientific research tend to be best at writing big checks for big projects. Now a bunch of nonprofits are trying to fund the little guys asking for single, donations to small projects. A focus on transparency—researchers must update donors with progress reports—could help get the public invested in science with their hearts as well, as their wallets. Here's a look at the new funds.—ERIM BIBA



FundScience

HOW IN HIS MIC ORONAL INVIOL mulic diplines of organizations eye' a me mount underging Proper's har con his ner a gets have their undstedis ibused. A PAR T FERENT Fund 5 pine axes dona ions from individuals and gan tal onsig, ke .. P CC * Researche sai ne er exfor enamic Sciences ale coking distudianasiysi ain of a it is es an pheumos cus ha Gián hệm s phínhha đại b of the end menting is AM V - SEL \$2 0 0 a L L 4= 55 \$22 500

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SciFlies

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Most Dangerous Object in the Office This Month:

GreenSteam Weed Killer





EVERY BOTTLE EARNED ITS LABEL



TOWNER TO SVOK | ITT PERCENT PERCENTLY ARE

WORTH THE EFFORT

MEDIAMAESTRO

ORA WITH BLAISE ZEREGA CEO OF FORA.TV

Passion. Perseverance. Experience. All these factors come together when a creative encyator takes an unbeaten path to reach further than he ever dreamed he could.

This interview series showcases business leaders who forged their own way ahead. to create successful careers and live a rewarding life that's worth the effort. Learn more below about the passion. Thalienges, and rewards that fuel Biarse Zerega.

■ Q: Tei one about FCRA.tv.

A. There are boil rant ideas being expressed every day, everywhere around the world, but unless you're physically. present you can't enjoy them. FORA.tv. gathers these ideas and makes them. available to anyone lanywhere, however they want them—on their TV, on their smart phone or on their computer

Q: What respired you to leave traditional. media and to go this particular soute?

A. The use of video to connect to an audience really excited me. Audiences can interact with content in new ways and that is incredibly energizing. In the old days, content was always at arm's length but on the video can be shared and as it circulates around the web, the responses trave, with it At FORAlty we have intelligent content that inspires discourse and debate

Q: What motivates you on a daily basis?

A Engaging with the FORA tv audience and interacting with them. They inspire me. I have one of the most st mulating jobs in the world where I constantly seenew ideas coming over the transom every day With technology changing so quickly, we're at the forefront of an explosion in online video. and for a nimble little start-up to be at the center of this revolution is exhibitarating

■ 0: What has been your favorite aspect about being CEO of FORALIV?

A. Berng able to translate an idea to action. What's wonderful about the web is you can do things so quickly if you warn to my something out you can make t happen today. If it doesn't work, you can take it down same day. As a longt me technology writer and editor it had watched companies from their genesis and throughout their growth, analyzing what they did right and wrong. Now I can put a lot of the lessons liobserved into practice. I m on the other side of the table and that's rewarding

L How do you reward yourself at the end of the day?

A One of my pleasures is to just shut the door and watch a video lat FORA.tv). Just by myse f and absorb it and be stimulated. by it as a consumer not as a CEO.

R: What makes FORA.ty so worthwhile for you?

A Ten years ago you would wath into someone's office and they would have books full of great ideas. Now you can see the authors speaking about their ideas. tis a whole new experience watering one of your favorite authors, who you feel ake is talking directly to you. Better than reading one of their books. It's a new way to connect to an audience and I love if



Master's Degree in English from the University of Texas Attended NYU and West Point Active in San Francisco start-up community Passion for cycling, fly-fishing,



COMPLEX PLAYER I 180 PROOF L PERFECTLY AGED

music, and reading

Reimagined, Redesigned, Remarkable.

AK-47*How a Gun Changed the World Who Really Invented the Computer? The Plot to Overthrow Ticketmaster How will radically enhance the future of medicine.



WIRED, com/opp 4) Corners by Court Bear

How to Own Winter

Hibernating by the fireplace is fine and all, but if you really want to enjoy the season, you'll need a few ways to dominate Jack Frost.—Bob Parks



DRIVE ON A FROZEN LAKE

The glassy surface of an iced-over pond is perfect for power slides. Just keep your window down in case you take a plunge and need to escape. Here's how to do it, at your own risk



I TAKE A SAMPLE 2 0

With a 5/8 inch wood auger bit dni through the ice then stick a tape measure down to gauge thickness. You need 7 inches of clear ice to support a 2 ton compact for An H2 needs 9 inches.



2 DUTLINE A COURSE

Take depth measurements every 50 feet along the path you li travel. Drive only on tested areas to avoid thin spots caused by pressure.

dges na ura sor nas and hidden colverts



3 RELEARN HOW TO ORIVE

Practice correcting for sides To corner effectively use more gas pedal (nan brake If you oversteen don't stomp on the brakes laccelerate smoothly and turn the wheel in the direction of the skid.

Heat Your Driveway

AN A CREON TOP

ME PAVEMENT
Wrap lengths of nicke'
throm am wire around
masonry noils and stretch
them across your drive
way it parallel lines
I inches apart. Solder
these on each end in per
pendicitian copper wires
running dawn both
sides of the driveway.

2 PROTECTALL THOSE CAR SET WARDS
Cover the gird with a max of fine sand and drive way sealant. I may take a few coats or hire a contractor to pour on some slutry seel for greater durabulty.

3 ADO A POWER
50 RCE
Use a pair of (identical transformers to step down 20 vol.) house our rent to about 100 amps at 20 volts—epough to clear some snow but not so much as to melt your renduals.

Lace your driveway at the first sign of flurries. The system melts about an inch of snow per hour which should keep your space clear through even the worst of storms.

Make an Igloo

 PACK THE SNOW To replicate the dense wind-packed snow that Inuits use, shovel it into a 2-foothigh, 10-footsquare sheet cake and stomp it down with snowshoes

Waite few hours 2 SLICE THE BLOCKS US if glacer, enter a saw but blocks role? If y 2 feet long I foot wide and 15 feet high. Think of their is big cold legus 2. Build THE DOME Mark out a ring 6 feet across and begin stacking wideks in an ascending spira. Shave a slope into the top surface of each block so the wall curves inward as firses. 4. OPEN mup Cut a doorway. Poke a hole in the dome for air. To brighten up the joint, replace one block with pure ice. Wolla, a picture window!





TRADING TECHNOLOGY RATED #1 BY BARRON'S.



OFF THE FAMILY TREE



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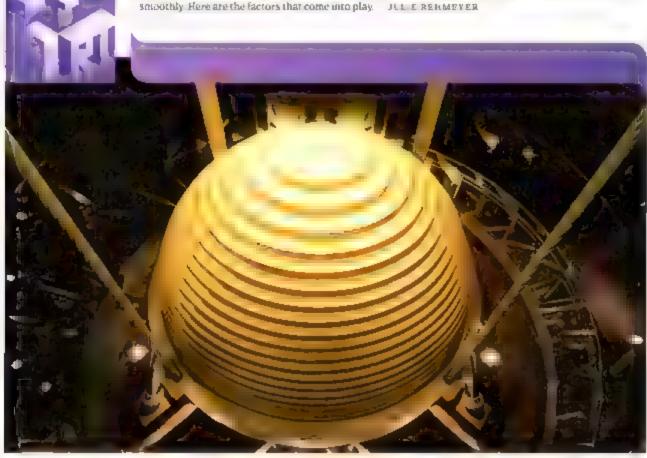
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EQUATION

Tuning a Skyscraper

A skyscraper is a giant tuning fork-toive one a good knock. Tike with an earthquake or a heavy gust of wind—and if II start vibrating at its own dature, resonance frequency (about seven octaves below the lowest notes on a piano). If you re on the log floor or say the 1.667 foot had Taipe 10, you could had yourself swaving back and for that ruptly a total of up to 2 feet within five seconds. Highly barfogenic So. To per 10's designers hung a pendulum inside the building—in this case, they used an equation like the one below to determine that the

megastructure needed a 730-ton weight with giant shock absorbers boiled to its bottom, it's called a tuned mass damper, and when the tower starts to bend in the wind, the penduam swings at the same frequency is the opposite direction, pulling the building upright and damping vibrations. It sto, sways, but subtly and solveothly. Here are the factors that come into play. If I I REKMEYER



FORMULE FOR ENDLYZING STRUCTURES SURY

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- Acceleration (m/s, a thetopin/a building: the main cause of hausea the (haidenvalive of velocity unit which sithe derivative of distance u).
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- k 5: Mness of a buring measured in new onsiper meier kg.s the amecessary to bend it a meter
- Displacement of a building at the top-lihar is the distance if sways in
- The dynamic mass of a building in kilograms. The oplof the struction will move more than the bottom so he apper mass counts mole.



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Windows® 7 Professional operating system makes the things you do every day faster and easier. With fewer clicks, faster searching, easier browsing and simpler ways to connect, there's less between you and what you want to do.

At real capacity ware with pretrade insternal and open incomprehability applies in spanning memory at 56 is in a gapting tiever him well as the 6.5 in the

Retrobeer Phi adelph a brewers reverse-engineer the ales that got the Found my Fathers drunk

In 1757 a colone, in the Virginia militia recorded the way that thursty soldiers had made a DIY beverage with some water, hops, and molasses. The colone. George Washington, Yes, the father of our country recorded astructions for making a very s. ff beer God bless America Today a mas and a half from Philadelph a s

Independence Hal Yards Brewing Com pany has resurrected old George aid rections It's one of the brews .r. its A. 88 of the Revo. a tion ser as an homoge to a finje when our forefathers were creating a

more perfect union-while ketting drunk off their ass. But re-creating centuries, old formulas takes 40 no detective work And a verofsteel. "The beers back then tended to be very strong," Yards founder Tom Kelipe says. Here's how the recpes were no ved Mixis o Bon



General Washington's Tavern Porter

Kelipe found Washingt in siter india for his grow forceme by Egypting Carrier at the Alley York Public army They drive holf of a rosk of printing high adia was things as and wallet well and some as a sense to the begins a days is carbona edilleer. Yards ises a simil ial method, minus the drinking of course

Poor Richard's Tavern Spruce Ale

Based or Bon Franklin's across for spruce Unserficient which Kenon found a copy of all a museum. It was great for warding off sucreyspruce is highly vitarnin Clibul this as let tible. To ge the smell of Christmas without the face of Pine Soi, Yords scoops spruce and needles in the kottle late in the boil

Thomas Jefferson's Tavern Ale

Ke too sturing the averyations of Jefferson's born ellar and pored over his faror records of overse enginee in truly bettey wine with a briding 8 percent alcoholiby you lime. But yet ferson whill discolf. His viji ston was altmost 13. The cofoundor of the Democratic Republican Party was a party ahittor



At microcontracting site Fivers t so lab ut the Abrahams

Some services aren r War 21 In h m M wage Like will Hig his actic es headline. ac oss your cleav age or painting an you orchead or strathing in he sand Luck y one site allows the underemployed and over v barea to pedale their sk-ils at an approp

ately low rate. At Filvernia standard 55 fee connects buvers to aborers and self procioismed experts in aid azying variety of fields. Wan ito lear how to make your own lip balm? All you heed is a PayParaccount. Here's who we found in a cursory perusal of the site. We're sure that

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CLIVE THOMPSON We're All Coders Now

Writing software shouldn't be last for engineers—It can be as easy as ABC



HOW DO YOU STOP people from texting while driving? Last spring, Daniel Finnegan had an idea. He realized that one of the reasons people type messages while they're in

the car is that they don't want to be rude. They want to respond quickly so friends don't think they rebeing ignored 'So what if the phone knew you were driving and responded on its own? ' Normally, Finnegan wouldn't have been able to do anything with his insight. He was a creative writing major at the University of San Francisco not a programmer But he'd enroyed in a class where students were learning to use Google's App inventor a tool that makes it pretty easy to hack together simple applications for Android phones by fitting bits of code together like Lego. bracks of Enneganiset to work, and within a month held created an app called No Text While Driving. When you get into your car you hit a button on the app and it autoresponds to incoming texts with "I'm driving right now. I'm contact you shortly. I ve used the app, and it's terrific. By getting you off the hook socially it makes your driving safer. It ought to be available-mandatory even on every phone "Finnegan's story idustrates a powerful point les time for computer programming to be democratized. 9 Software, after all, affects almost everything we do Pick any major problem global warming health care or in Elinnegan's case, highway safety—and diever software is part of the solution. Yet only a tiny chank of people ever consider learning to write code, which means we're not tapping the creativity of a big chunk of society. Serious leaders already know this. "Every time I talk to generals in the oulstary, they talk about how they can't find enough young people who know how to program," says Douglas Rushkoff, author of Program or Be Programmed, a new book that argues

that everyday people should learn to code

What's more knowing programming changes your worldview. "You learn that every problem is made up of smaller probiems," says Kevin Lawver a web designer whose 11-year-old son, Max, has spent the past few years designing programs using kid-friendly languages like Scratch, Frankly. companies are Facebook and Google would probably face a lot tougher scrutiny if their users understood haw software works. Facebook users would know it's not that hard to program finely grained controls over Who sees what on Facebook, a service, but is, its computer scientist Elsen Mogien semijokingly puts (t, just "some PHP doodads"). The current mystique around software allows companies to claim that the way they're doing thungs is the only way possible, when it isn't

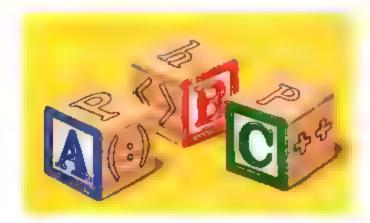
But isn't programming inherently hard? Sure Sourciots of things. Heli, cooking dinner involves lethal implements, a fire inside your house, and ingredients (like raw chicken that can poison you if they're not correctly prepared. We leach hids how to do that safely; we can do the same with programming.

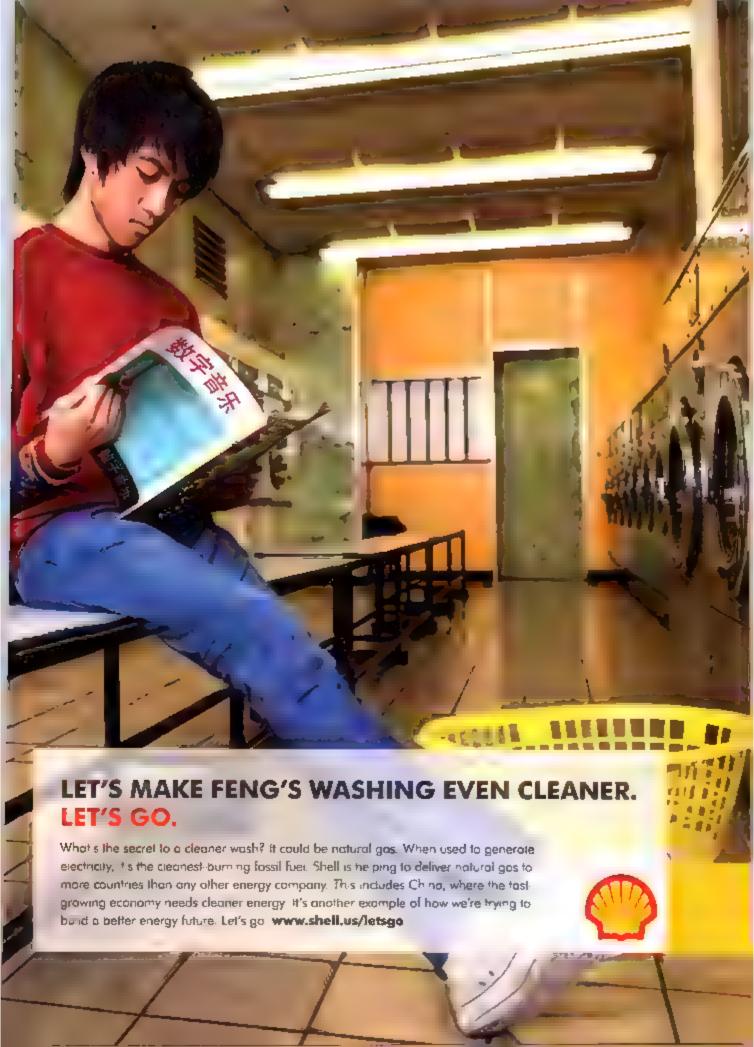
It'd be great if programming became part of the curriculum, but that probably won't

happen, given how slowly schools change. The good news is that—much as the "maker" set is relearning how to bind stuff—a grassroots movement is creating tools that jet even liberal arts majors back together a program. In recent years, we've seen the release of oodles of languages designed to make it easy for lods (or adults!) to write code, from Processing to Scratch to Google's App Inventor. In fact, 1 just used App Inventor to make a program that lets my toddler and kindergartner call family members by touching their pictures.

Got a problem you need to solve? When you can program it yourself, there's always an app for that III

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That's the Wonder of Samsung.



Bonus 3D Starter Kit.

Now thin uph 21 1741 to a Same and 10 / 20 TV and get in uns of Sar king 3 I Au it is based in a merit in three Sare movies from Chaemanons. It is not in up to a same and the feet based in the feet and t as well as a master lougher for the fourth and fing integriter. Shrek Foreve: After



TURN ON TOMORROW

MPLRNTED IDERS THE MOJIE BABIES TRANSFORMATIONS MALIENANCIES, BLACK BHILL OVIE THAN BUT PANELSHOOT A MICHEY MOUSE PENADOS STAINCASS BEGINNINGS DRIGIN STORIES THEORY POR SECTIONS IN SECTION Acts of birth, evolution, inspiration, and illumination we server this month. (Including a few stories about the movie.) INCEPTION



PLOS PINCEPTION // PROTOTYPE // •

BLASTS FRUM THE PAS

Sherlock Jr.

More than 80 years before Inception, Buster Keaton's dreamy silent movie mesmented audiences.

MOVIE THAT MARSHALS EVE



popping special effects, precision editing, sophisticated action choreography and thabolically elaborate sets to explore the nexus between dreams and reality. Sounds familiar. right? Well t's not inception it sithe 924 silent comedy Shertock Jr., directed by Buster Keston, 9 On the surface. Sherlock Jr. is a hyptcal Walter Mitty tale: A hapiess movie projectionist framed by a comartic rival for a theft he didn't commit fantasizes about becoming a detective and clearing his name. The film is falled with Keaton's signal are acrobatic stants and delightful visual wit, but things reday ge" interesting when the projection is a faus asleep while screening a drawing room mystery Dreaming that the movie characters are his sweetheart and the rival his dream-

self rises, walks up the als e, and c, mbs in a the screen to con ront them. To ach eye his effect Keaton built a carefully utset within a set and the

iPad Extra
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dream reality tries to expel the intertoperfirst his nemesis tosses him back into the authence. (As he lands, we see the snoozing projectionist twitch.) When he clambers back into the screen, the fum medium itself. appears to shake him loose by abruptly cutting scenes out from ander him: The drawing room becomes the front states, shutting himout of the house. As he descends, the steps become a garden bench, causing him to take a nosedive Dusting himself off and sitting down, he lands on his keister in a busy street And so on -- diving off a wave-battered rock be lands in a snowbank. By precisely match ing posture and camera angle from scene to scene, Reaton made it look like reality was shifting around him. I Half a century before Christopher Noian was born, and long before CGI Kealon created a vivid world with its

> own laws and internal y consistent logic Call if the inception of Inception—it probably efficient as many folks scratching their heads on the way out.

M DREUMS ME

ASSERTATION

Sleeper Hits (and Misses)

Everyone says we should for low our dreams. But is that always good advice? (Probably not if you live on Eim Streat.) Here an ook at how some prophetic visions panned out.

THE DREAM Rolling Stone Korth Richards hears what will even tually be the "Satisfaction" riff in his sleep RESULT The Dinote lick becomes an iconor youthful rebellion. Then it is used to sell Snickers bars.

THE DREAM Santiago the Shepherd, protagonist of Pagio Coeiho's The Aichemist sees treasure buried beneal higgspt's pyramids RESULT He finds the bot and learns how to turn himself into wind along he way. Badass

THE DREAM Elm Street rasident Nancy Thompson meets disfigured gardener Freddy Krueger who attacks sleepers with finger knives RESULT At least 0 sequels and spinoffs Call it a recurring hightmare

THE DREAM Twin Peaks FBI agent Date Cooper speaks with a backward-falking, mordered promiqueen REBULT Cooper ident-fies the murderer and destroys everything interesting about Twin Peaks.



Megan Geuss

ILLUSTRATION Pets Ryan

TWICE MELLOWED.
ONCE GIFTED.





TO HEADTONIA ALWAYS IN SEA

PLEASE DRINK RES

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Some heroas are born, others are selfmade mechamen. Here's a guide to how our favorite supers got that way.

HENDES THE ENTERN TY HENDES TY O





Sell Yourself

Justin McLachlan



Tye just started a band. How do 1 coax.

Sy in this or Marketing IO a Berkiee Cill golof Music references social media inchemarkets and gain at entirenties money will follow Positively evidwed attention management and nitropic shing tools include BAN Metrics fac satisfies acking) Faithful M. Myspake song streaming/newinking. You use (videostreaming/newinking) You use (videostreaming/newinking) Data noticate music circums six who use Two er buy 77 per entire music who use Two er buy 77 per entire music who use Two er buy 77 per entire music who use Two er buy 77 per entire music music six of contracts and six o

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ar a Pete Ryan

SHOWTIME HOUSE

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HOWTIME





THE BIG C

1 Clarity Lounge

> Designate BG Studio International Inc.
The Rig C treats the diagnosis of cancer
as a catalyst for change for lead character Cathy. The Clarity Lounge offers a
whimsical take on a living room designed
around the themes of rejuvenation and
birth with a swinging sofa, Swarovski's
Blossom chandelier a living wai, of plants
and a Magnetic 3D TV showing healing
scenes of nature. Featuring, Blossom by
Turd Boontje and Glitterbox Floorlamps.
Lanterns by Georg Baidele for Swarovski
Crystal Palacs, Karastan custom rig;
Laxron lighting, PANTONE Paints by
Fine Paints of Europe.

2: Master Bedroom Bath

> Designers: Stephen Chang with Matthlas Altwicker/AB Architekton

The secret behind Cathy's tranquil retreat as an interactive chromotherapy system that uses color to evoke a sense of emotions by using his-obanging LED lights concerned behind the walls and ceiling Featuring Dyson Air Multiphor Fair, Hastens Excel II bed, Karastan rug Lutron aghting PANTONE Paints by Fine Paints of Europe



THE BORGIAS: Great Room

> Designer: Keith Baltimore

This great room made in bonor of The Borgios has the ferriof a has been connected a Removance Italy but with a modern twist in gaining station piers Assesses a Creed. Featuring. Brizo fictings: IDS Audio V deo Technologies; Lutron lighting, PANTONE Paints by Fine Paints of Europe. Swarovaki Crystal Cross.



UNITED STATES OF TARA: Loft

Designers: Brooks Atwood of Pod Design * Media/NJTT Assistant Professor, with Parlin Studios

When suppling into his enormous existerion, visitors enter the many levered and subconscious mind of Tara. Video tracking technolog, created a digital mirror allowing visitors to merge their ateritates with one of Tara a literature personalities from United States of Tara. Featuring Dyson Air Multipher Fan, Lutron lighting, PANTONE Paints by Fine Paints of Europe.

WEEDS

1. Lounge

> Dasigners: John Locoka and Jason Oliver Nixon of John Loceke Inc.

Nothing in the world of Weeds is black and white, so why should at the Botwins looning tollow sun? Authorigh the vivid floral wampaper looks fine pricey designer fare, it was custom made with HP's Wall Skins, a system that uses digital technology to convert any design into an affordable wall covering Featuring: Dyson Air Multiplier Fair, Brize fittings, Lutron righting.

2. Loft

 Designers: Robert Bristow and Pilar Profitt of Poesia

The Weeds loft combines beautiful custom made furnishings to impart the automifortable, paranoid feeling of Nancy Botwin's afe on the run. Featuring Brizo fittings, Lutron lighting shades, PANTONE Paints by Fine Paints of Europe Sonos S5 all-digital sound system.







CALIFORNICATION

1: A State of Mind

 Designer: Space 4 Architecture (Michale Busiri-Vici, Guello Carpagna, Ulderico Micara)

Hank Moody's troubled state of mind and the feeling of balancing on the precipies are captured in this room through mirrored flooring, transparent and prinkly further are and a dark sian ed ensiversy Fearning, Latron Eghting, PANTONE Paints by Fine Paints of Europe

2 Lounge

> Designer: ECCO Design (Eric Chan, Bradley Price, Jeff Miller, Peng Zhao)

Hank's lounge is filled with reminders that in Hollywood an a smoke and mirrors. There are smoky photos on the closed doors and a wan covered to frameried gass. The interpretable booth uses HP technology to put visitors into the shoes of their favorite. Conformation inharacter Featuring Briza faucet and fittings; Dison Air Multiputer Fair Vacuum Lutron lighting shades. PANTONE Paints by Fine Paints of Europe.







DEXTER

1: Refuge

> Designor: Jeff Andrews of Jeff Andrews-Design If Dester could live his life openly, he'd be drawn to this moudy refuge that appears to his artistic and intellection sides, as well as his fragmented person any. Elements of this room are organic, fractured and orcepy, but the technology is nothing but the latest from LG superthin LG LED TV and LG's

Art Cool, Featuring: Dyson Air Multiplier Fan, Briso fittings; Lutron ghung, PANTONE Fanta by Fine Paints of Europe.

2 Gaming Room

> Designer: Gregory Okshteyn of Studies Go

Modeled after the animation software used to oreste the Dester the Game. Phone app, the 10-by 12-foot tovosest was made from 1,100 laser-out board pieces and took four weeks to create. The mirror bolind it transformed into sound speakers using Sensorium AV's new transducer is three view diameter disc placed on the mirror backs. Posturing: Karastan rug, PANTONE Parata by Fine Parata of Europe.



NURSE JACKIE

1. Master Bedroom

> Designer: Laura Bohn of

Laura Bohn Design Associates

Name Jacke's patients will recoup in a whirm our coun fixed with olever yet ballucinating takes on perspective, form and light, Centeres are at a trapecoids, bad, the latest disperios, ght some two, heart mor for somets and chapel provide an intervalive twist on conventional Nurse Jacket has pital fare. Featuring: Dyson Air Mastiplier Fan: Lateon lighting; PANTONE Paints by Fine Paints of Europe

2 Lounge

> Dasigner: Katie Lyden Interiors

Swiring around Name fackte like a heate handcination are walls evoking all things medical. In her lounge, walls are embel shod with an all over pattern of puls, pin bottles, syringes and thermomcters, each hand stanced in silver metalic and searlet paint. Featuring: Dyson Air Multipuer Fan, Brize fittings; Lutron lighting, PANTONE Fair a by Fine Paints of Europe.



GET AN INSIDER'S VIEW OF THE SHOWTIME HOUSE

1 Ha Way

Designer Bruce Meu Design

An iconic symbol from each series, keiths knife for Davido was projected or the walls painted to appear slightly skewed and her ser against a backdrop of eye-popoling does. The spaces offer trues to the inner workings of each character feming-ing as that when a prices to their complexities included is as simple as black and white Featuring, PANTONE Paints over Fine Paints of Europe

2 The Borgias' Great Room 3 The Big C's Master Bath

The abest products from 9.20 in Fine Bergias graph one and Dyson in Fine Big C's liaster bath appeal throughout the anownouse and are perfect complements to the designers visions.

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LDC ATION PARTNER































TECHNIC DOVEMBERS

































Our Cancer, Ourselves

How the story of one disease is really the story of medicine.



T BEGINS WITH A Single m. attor deep inside acci. It ends too often, with a take over of the body cancer in this polgnant about. The Emperor of Air Maladies, Columbia Medical School leukemia expert Siddhartha Mukherjee delivers a "biography" of cancer showing how our conception of the disease has changed with our understanding of the body. Ancient Romans blamed an excess of "black bile." At the dawn of modern surgery, physic anside our procedures like radical masses onces. The allomic age birthed supertoxic chemo cocktains. And now that we're plumbing the mysteries of the genome, we aim to crack the codes that mack our cens. "Every era." Mukherjee writes. Casts, these in its own image."

One of the recurring motifs in your book is that cancer is like an exapperated version of ourselves. a carlcature of our ownicel a imperatives for growth and evolution Nearly evely one of the genes lipt turnsount let alkey playe. nicancer has a vival role in the normal physiology of an organism. The genes that enable our brains and blood cel·s to develop are impli cated in cancer. The gene tha enables birds io earnisongs can become lancer causing There sho normal physiciedition independent and the bas ardized by the diseaso.

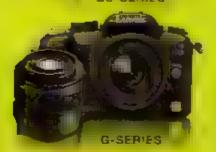
How have genomics research and personal-zed medic-nechanged the way we think about cancer? In the book paraphrase Totsicy and say that normal cells are dencally happy by cance cells are unhappy in their own unique ways if you lake i00 breas cancersamples 00 types o cancer have 100 mil ferent havina as of mutated genes four outdibe nihites Tic and say Oh Gub We'l never or able to ackle this But the earn down system 8 ic organizacional principles a Work it at the diversity The most promising linger on n cancer R&D a c-under stand those principles at the genetic evel

Vou call your book a biography of cancer How do you visualize the lead character in the story? Because I wolk on eukemia the image of cancer cairly in my mind is that of blood imagine that docuors who work on preast cancer or pancies it cancer have very different visualizations. About a month ago, changed the color of the crabion the lovel of my book from diack io less other my image of the disease.

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28-SERIES





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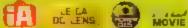


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Panasonic LUMIX

Indecent Exposures

A new exhibit explores how photographic innovations enabled intrusion





OR SANDRA PHILLIPS, it all started with a 1997 exhibit of police department photos—including some of the earliest images of crime scenes, mug shots, and evidence—at the San Francisco Museum of Modern Art. The longitime photography curator at SFMOMA was hooked and has been acquiring invasive photographic firsts ever since. Especially intriguing to her was a salacious side project by impression at Edgar Degas, one of the first major artists to use the camera as a tool for voyeurism. Those photographs, Ph., ips says, "look like peep show pictures of people doing things! we getting dressed or drying themsetves." Phillips found other snapped oreacles of privacy by digging through the Nutional Archives and private conections. The resulting exhibit Exprised: Voyeurism, Surveillance and the Camera Since 1870, is on display at the museum through Aprill thoratics the history of photographic intrusion, from hidden cameras to celebrity stalking and recorded violence. Here's a peek at a few first exposures.

Untitled, Koher Yoshiyuki (1971) Thumiyent I

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A "Scrub" and Her Bedthe Plank Jacob Rite (1892) A cool or importor for inchange reference Riss change in a consistency for including any more one a copy which are to inguity some any inchange in black of a floor to get, in some yes often as one subject is were often as one.

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The Electrocution of Roth Snyder Tom Howard (1928) To get this New York Daily New York Daily New York Daily New York Daily New York District and John Shape of the Ward District and John Shaped another. His call Snyder had murdered her husband with He help of he lidver Howard caugh her death by raising a cable threaded up to his pocker.









INTRODUCING TREND MICRO "TITANIUM"

It's a whole new way to protectly in PC in white in inty spring in Tanums ups webth at nie attet, et e rear vou he result sibe emproted ignitial uses as memory to a ship ye. PC down 5 mp v put nothing comes 1 (.e.

Titanium is Ranked \$1 for Performance and Protection

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Fig. 190 Have Ellie ESS December 2 of Fig. 19

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FASHIONABLY TECHNICAL

Your winter jacket shouldn't make you look like you're trying to find your Sherpa. New high-tech fabrics allow brands like Aether to create jackets that keep you warm without the bulk.

THE RETURN OF THE INSTANT PHOTO

There's a certain charm about nation pictures that digitalization never replicate. Analog punsts are happy to know that companies like. The impossible Project are pushing for an instant-photo renaissance by releasing their own special films and similarly defined action cameras that keep the instant film flame burning.

EAR CANDY

Whether you like your gear shiny and flashy or you rela design savvy minimaist, you can choose headphine in variations and colors for any taste or mood — withese from Urbanears.

SUSTAINABLE TECH

You can now get an iPad or iPhone case made of a sustainable material like bambor. Clean audio company Versiuses nothing builties as all lab is wood which get is no eco-smart each, to high sech gadgets.

THE NEW CARRY-ON

Streamline your travel with one of my fair is to carry alls. the Messe Life Backback from Incase with room for a nucle of bays worth of clothes and an easily accessible actop slot that makes TSA screenings a breeze

FORD EDGE -

One of this season's most tech-forward trends is the 2011 Ford Edge with available MyFlord Top in feeth and season's ready 10,000 ready zero as will vated controls. Constrainment displays steering wheel control panels and an intuitive touch screen drivers, an direct their havigation, entertainment and phone all by the sound of their voice or the touch of a finger.





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ADDD: VOICE COMMANDS, ENOUGH SAID,

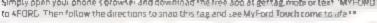
it doesn't just granter and property and streets. A whole let of them. The new SDGE with MYPCHO TOUCH!" An automotive first. It's quite possibly the world's synarless common a

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Drive one.

Grim Fairy Tale

Director Darren Aronofsky transforms Swan Lake into a macabre thriller





here are movie creatures we expect to be scary, like vampires, zombies, or Zach Galifianakis without his pants. But when Darren Aronofsky set out to invent a new kind of psychological thriller, he began with cherry-cheeked ballerinas in toe shoes. Aronofsky has shown as the dark side of the everyday before, in Requiem for a Dream and The Wrestler. Now, in Black Swan, he brings out the evil in the cloistered. world of the New York City Ballet. The movie stars Natalie Portman as a mentally deranged dancer so obsessed with her starring role in Swan Lake

ing physical transformation into a black-feathered beast "Swan Lake sabout a young woman turned into a haif swan, half-human creature by an evi, magician When Theard that frealized, oh wow this s a werewolf story " Aronof sky says. "I started thinking about Natalle Portman and the idea of turning her into a swan, and I thought, it's gonnabe gruesome." Tcharkovsky's sweeping symphonics accompany American Werewolf esque morphing sequences there are 300 f/x shots in the film impressive for a modestly budgeted indie making Brack Swan the world's first surrealist-horror-thruler-sci ft ballet movie. Or something like that "Alec Baldwin described it as uacob's Lad der in tutus," Aronofsky says, faughing, "And I minot about to disagree with Alec Baldwin " Indeed To the list of things that terrify as, add 90-pound divas.

that she begins an excruciat



Nancy Miller

The Trailer Track

MOV ES DON T START with the opening scene, they start with the trailer And buzz surrounding this alpha piece of promotion can make the difference between a blockbuster and a straight-to-DVD bust Benedict Courter founder of top aditing house Trailer Park, reveals a few industry secrets.

Ö & 6

roit At Bon Davis

Top Gun was the Citizen Kane of trailers.

those wo IT IOU ES OF quick utaways anu Tair 96 smoo hac idn clips were he descripting best

the rown fragchise Flicks live Ava. ar have at leas wo sets of eavers or line and in thealer. and up a pur different rations

in rotation

Tracers are

There s an industry standard, MPAA dic ates hacho american un more han wu and a half minselotal hall preciousit me

Trauers ere expensive hey gene ally cost \$350 a \$2,500 per second to produce: same times far more: u es Mostimako, once you lacto pure organia malike resting

M PREVIEWS M .



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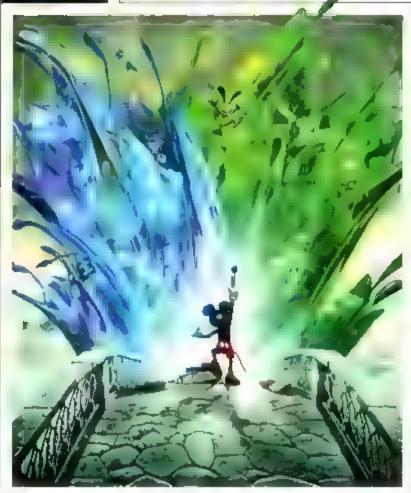


Danger Mouse

A new game harks back to Mickey's bad-boy roots.



MICKEY MOTSE WASN'T ALWAYS a squeaky clean do gooder in white gloves. Frankly, when he debuted in 1928, he was kind of an asshole. He guzzled beer, forced smoothes on Minn e. and swang a cat around by its to laws. to hear it yowl Bu, who hayear he set led down to become the apstanding fectow we know today. "Mickey quickly went from anarchist to young adult " says Warren Spector, lead developer on he naw game Epic Mickey Out Novem. ber 30, the game attempts to capture both sides of the semina animated rodent. Spector who sadored by inrecore go hers for crep luk he dark cyberpunk franchise Deux Ex, may seem ake an odd chojce to helm a Disney game. (for the kid-fr end y W i console, no eas) "But I wasn't a ways a treach. coat-and sung asses kind of gay," he says. "I used to be an animation jank c " He wrote his master's thesis or Looney Tunes characters and created a tabletop rote-playing game based on the crazy physics of cartoons. Now he's using his e reycloped e knowledge of enimet on history to take Disney a flagsh pichar. acter back to his roots. A In Epic Mickey. players control he timelar mouse as he fights his way through a freaky under world inhabited by forgotten D sney characters like Oswaid the Lucky Robbit, a Mickey precursor from the salent ers, and the Gremuns, stars of a scrapped 1940s feature, instead of standard videogame weapons, M. ckey is armed with nk and paint hinner. He can choose to behave like the good guy of his mature. years or the mischlevous scamp of his youth. Our choice? Pucker up, Minnie.



M DECODE M D

You will as not in men habit as a

Prograss 46 ask reimpossible some

ectine hall chalacters grappled with

n inception. You start on the blue step.

one you may traveletther up or down

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spaces. At the end of your move, you be on a step with another number. Again.

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is to finish where you began to halve 6

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f you go up you move a number of

and you lea lowed eigh moves. On each

Up the Down Staircase



SOLUTION
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IBBUE Decamber

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ND Values of the art case are at the fig. in the Spread Majolia Hotspiel. In Other Yerres, we have a set of the set of t









PLOY : INCEPTION // SCREEN // *

Dream Weaver

The writer-director of inception gives away everything. Or does he?





CHRISTOPHER NOLAN, director of Memento, and The Dark Knight Lends to let his twisty genre deconstructions speak for themserves. But he agreed to talk to wild about the decade-long acception of his movie prophanion DVD December 7 We talked to him about houses. architecture, and the difference between ambiguty and a lack of answers. Flint One is better lookng al you Lost For a Nordh-wided breakdown of the him, turn the page.

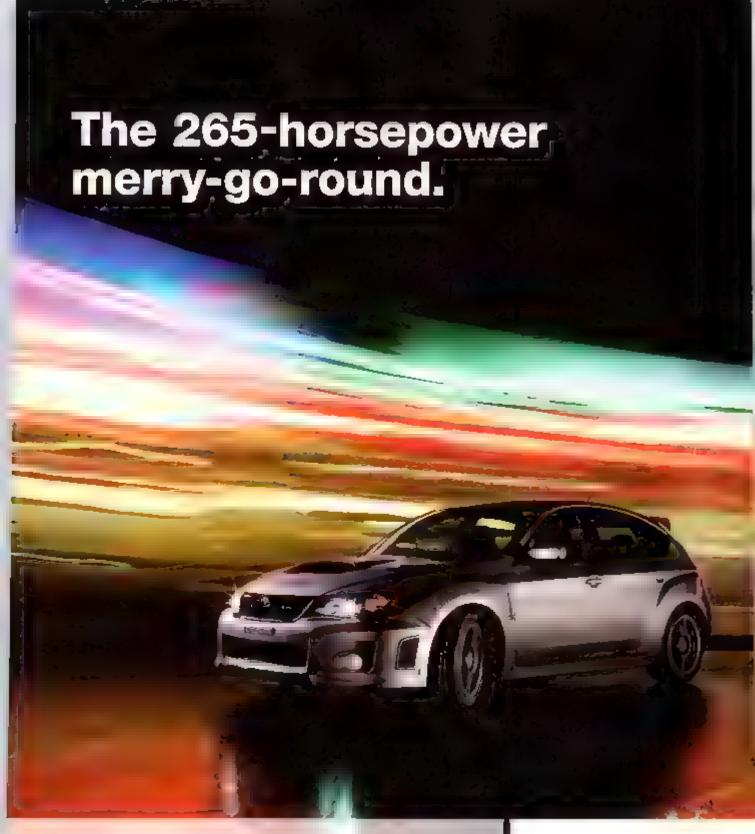
How hard was it to write the inception script^{a Tine} lea problem was har is alredwith a neighborhad lively That seemed the besilway a get ingla inelexpost on in What lever hually real ized however is her heist forms are usually unemed. Tronal Eurowahler I deal with the world or preems. and resided that lead y had to often the audience. almore empiraria na rai ve Tell me about the importance of architecture in the mayle. The proy on itehwas ever of invereshing me notice. than filmmaking was all hillied ture And imivery nie as adin the similar lies recikeen the way welebber en lea in leedimensiona space na lan architect has created and the way an audience experiences a ninemar change lie thank box in a (Areedimensional reality from a

two dimensional medium. Have you read the online discussions of the film? I ve seen some of them reah Do people get it? People seem oftence ing he nings her emiean to notice the mags har are meanting be not probe gallies input tivo in one diversion or another But live also read piently of very off ne war interpretations OK, but seriously: Is it all a dream, or what? it sivery important to me that by the ead of the film you under stand what Mai means when she vays in Cobb. You don't believe in one reality anymore and hat we see he protein a projetting lost How did you read the end of the him yourself?

I choose to believe that Cobb gets back to his kids, because I have young kids. People who have # ds defnitely read it differently than those who don. Clearly the audience billings a lot to it. The most import an lemotional hing auduling his notional hing auduling his notional hing auduling at it. He doesn care ("diguess there's no one right answer.") Ohing, ive go at answer.

You do? Yeah veloways be eited hat you make a film with ambiguity inceeds of the hazerd on a rule over pretation. It should have in Add itself or it will be somehow insubstantial and end in making he audience feel heated Ambiguity has oliometram he inabit ty of the character to know and he alignmen of the audience will hat character.

Robert Capps



Corner like a thrill ride on rails in the new 2011 impreza WRX. Symmetrical All-Wheel Drive in a bold new wide-body package puts an asphalt-eating grin on your face every time if digs its claws into a turn. That and a turbocharged SUBARL BOXER' engine, without spending stupid money? Now that size pyride. Love. It's what makes a Subaru, a Subaru.





Inception, Explained

Christopher Nolan helps us Interpret his mind-bending films

Cobb wakes up on a beach.

After the first extraction laifs, Cobb spins his top to check if he is in a dream. It falls over

Saito says he'll clear Cobb's name if he takes the job. He asks Cobb to take "a leap of faith." Cobb needs a new architect His father-in-law, Miles introduces him to Ariadne Cobb starts
assembling his
team and trains
Ariadhe in
dreamweaving.

PLIN TO UNCEPTION AN SCREEN AN .

Cobb goes to Mombasa to get Eames the forger and Yusuf the chemist



Saille spins the ropland rispins forever live an sepalate dreams from really This es ab sines content, ne audien e ne maye shortai a dream Filmmaker No an sailing the audience to take a cop of aith that the move s of a dream After a test disease and substitute at a 5 ill not a disease.

THE ENTIRE MOV E IS A DREAM A in four forming to the following to the first that work of the following the followi

This gives Cobb a leave (ine reality, But here an untrustonerity recounter."

Miles ell Codd to control service recció se por teles que ocigin a y sam

We never on the will prove the second of the

JUST THE ENDING IS A DREAM in sight must dreaming But that is not most to secure conunances as unances as unances as

"I don't think I'm going to lott you about thin," Yusuf a dish tant says that to a dispament the dismin timed ity Reality &

THE MOVIE IS A HEROIC EPIC.

Indiany—eluses theorements Primer rand Joseph Campbell, Bone Hillogo pero of my pilot—the belogistic, the Mindon, etc.

A classic (all to in Greek mythol ogy & milht intering efuses in letter ing he her an exist in letter ing he her control of the control of th

"I wanted to show the parties that for the rand world to have analogies to the drawing world. The manufiles ofly of feathbook does that."

OR MAYBE IT'S A MEDITATION ON ARCHITECTURE.

A beautiful pan across Tokyo rooftops A beautiful pen noross Paris rooftopy. Also Miles says he has "no space to think." Cobb tries to limit Anadoe's dreat villy in the dreamspace no specific memories as tempiates A beautifu pan across rooftops of Mombase

ACTUALLY, IT'S ABOUT MOVIE-MAKING. Movies Ask us to take a leap of lain it disuspend disbelief I didn't intend to make a film about filmsatisfied, but I gravitated toward the aniative previous that I bears."

All the roles cor respond. Cobb director Ariadne writer Earnes art director Sarlo producer Fischer audience Smash cuts mys ter ous chases implausible loinor dences—the gram man of film is the grammat of dreams

0 9 9

Robert Capps & Patrick Di Justo

MUSTRATIONS Luke Shuman

"I wouldn't say that I tried to use the grammar of the Him. to tell the sudience what is dream and what jureality." CONSIDER US INCEPTED. Ever since Christopher Molan's blockhuster but theaters in July, we've been trying to sussout dream from reacity. Now that we can brung the movie home, we can put our freeze-frame (humb to use "Haven") seen the movie? Stop reading, This is one big spouler.) Notan specializes in puzzies, and Inception is no exception. The trick isn't the plot - come on, it wasn't that complete cated. The challenge is picking out Notan's lies. Does hero Dom Cobb's rotem tell the truth about whether he's dreaming? Is the sequence n Mombasa just good action or good action in a paramoid dream? Below, our take on what's ready going on. To make sure we haven t lost our minds, we let Noian himself weigh in. As they say in Inception, the only way forward is downward - so into the rabbit hole we go.

The team enters dream level one-their by. Cobb recounts to Arisdne his history with Mal.

The team enters dream level two, the hotel. and then dream leve three, the hospital/fortress. After Fischer is knied in evel three Cobb and Ariedne chase him into limbo.

Cobb confronts Mal in limbo. and Fischer is incepted in the hospital

Cobb washes up on the beach (full circle with beginning).

Arriving home Cobb finally sees his children's faces.

Cobb spins the top- +sst spinning when the movie cuts to black







" 4 and " + eps

spinning Dream

The tide are





Maillasus Cabb a his sience of Francisco Barbara, Barb mark broken (recommendation

Non-Harden Inter-

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Cobb and Sado. created this. m m · True ending is a 6 are at not

The top is going The ending sa dream

Cobb begins his descent the underworte starts with "the road of trials."

Cobb spent some 50 years in Imbo with Mail Their world is an architec tura mnemonic

The architecture of the hotel a Arthur's weapon wars Penrose s airs elevator

A loane pads Cabbinone ande were di-In heroic epics, this is "crossing the threshold "

obbland Maks persona arch tectors in odes be sero and ad שלא פלוער לוות א זר skin of another

So see his a as again t validation shall -an shough COP! saying at action

top glove the total three to or programme or yr se of does ng skill mape s

the meaning of themovie Chbb's detea of Mail has been given to the especie aveign been incepted.

The hero has Su ceded in this dues. He sees his riids Failes la haisis sireauned.

s he golden -craft sman disease. PURE WELL à muse made cholor ky on he dining table

OK, we have no dea how the the finishes he he his numer

The prop guya just made a top demonial opin for a long him

he op seifis cons or edoppingscally its a oseudoschere. every paint curv ing away

The audience has to Take a lead of faith Noianuses ambigui y as a staryte ling tool There so takes

DRE answer

Oh on, I've get.



Baby Formula

I

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Pete Ryan

Branching Out

Photographer Cateb Charland exposes plants when they rejust getting started



HE INITIAL SPARK of a match. A pail as it, litters toward a magnet. A bud on a plant that's poised to grow into a branch. These moments of inception are often ephemeral to the point of being undetectable, but Caleb Charland manages to capture them, turning those flashes in the mind's

eye into thought provoking photographs. This latest endeavor tworking title Node Project focuses on those points on a plant from which leaves and branches sprout. Each of the little nodes they first felt like they could be an armature for an image he says. To create the effect shown here, Charland spray-painted a shrub black then highlighted each node with glow-in-the-dark paint Next, he stuck the plant in a ceramic pot and rotated it under a btack light exposing a sheet of 4 x 5 film to an illuminated pattern of potential growth. As Charland puts it, "I like the idea of taking something simple and ordinary and making it mesmerizing."



0 3 5

December

Lz Stinson



WHEN WE FRANCHISED WE HAD TWO QUESTIONS:

WHO'S RUNNING IT? AND WHEN CAN WE MEET THEM?

eas face-to-face and ensure that each





BRITISH AIRWAYS



THE ART OF THE ELEVATOR PITCH

How the perfectly distilled idea became the antidote to toxic punditry.





ot a sec? Then I've got one blockbuster of a column for you. It's about how the "elevator pitch" evolved from sweaty-palmed business ritual—a form of white collar panhandling perpetrated by pushy salespeople and desperate screenwriters—into the quintessence of the Big Idea. At the market place, the multiplex, the dinner table. Everybody talks in elevator pitches, tweets in elevator pitches, thinks in elevator pitches. And that's fortunate because wielded properly, the mighty Elevator Pitch could actually save us from the forces of fear obfuscation, and delusion that savage our culture. That's the gist of it anyway. Whaddya say?

You're still reading so in consider you honked But then I vegot a bully purpit. The ong hall elevator patch was designed for an outsider schimo with nothing but gamp to mandamic on dollar idea. He corners the Big Boss in he elevator if the one place he can secure a private papal audience—lays out his entire prospectus in less than a minute, and closes the deal before he doors ding open. The notion seems to have edged its way into business speak during the mid-980s, when the Big idea went aerodynamic. You had to dream in terms that Reagan could comprehend. A space laser shoots down Russkie nukes. We recalling

Star wars." The phrase quickly caught on in Hollywood, which saw an uptick in the sort of high-concept movies ("A robot is tought how to ove by Steve Gutten berg") favored by jow-patience executives.

The phrase didn t truly conquer the ver-

pacula, inhough, until Web | O Before the dorcom boom, geeks weren't called apon to hawk their wares. They built stuff other people soul it. But during the tech gold rush. as every programmer and engineer became a potential entrepreneur the propellerheads found themselves at the mercy of fickle venture capitalists. So they learned the art of the elevator puch which had a bulk un appeal for the right prained it gets to the point quickly fue devand agreatly with a minimum of stochastic bush roday 165 a zero-inventory retain anction website where users furnish the product other users bid on it and algorathms wield the gaver Sold: "Mannesodors from We send expatriate Mannesotans a different, constarting small from their home

state each week—snow, botdish, Garrison we light How do we do this? With computers. Yeah, we're still working out the details, but ..." Dirig. Time's up!

Today, the elevator pitch has outgrown its original industrial age metaphor and expanded into mass rulture. Terms ake biztweet. fuit pitch, and twitch are fast replacng Otis creaky box-nft, but the idea is unchanged. Of course some nught claim this is a bod thing, that constant elevator-pitching is just another symptom of a sick, overstimutated, hopelessly soundbutten society in which gubness rules. But an eleval or pitch is: 1 a shund bille - sian idea nimin sature a full three master build. o scole in a bottle it signt in be complete ogica, and watertight stem to stern. A good Plevator. petch is the antichesis of a sound bite- and tie cure for the common cable-talking head ramble Bloviators and professional obscurantists can confuse the basic contours of reacity by stringing daisy chains

of selective facts inc. dark webs of bigothy and paramola. Yet ask them to bou down their conspiracy theories, nebulous prejudices and voodoo economics to an elevator pitch and they ill mamble.

Maybe it stime we learn what movie ptoducers and angel investors have known for years. Gib is good. Lousy ideas often reveal their weaknesses when presented it drys tainzed form—they can be crystallized at a. Gassy vaganes are something we can't put up with in an elevator—or in if a. The room's too small and the ride too short for that som of noise. Make sense, be bright orger off.

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0 H 2

454. December

Leo Espinosa

HOLY SCI-FL

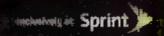


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Stati Musick





























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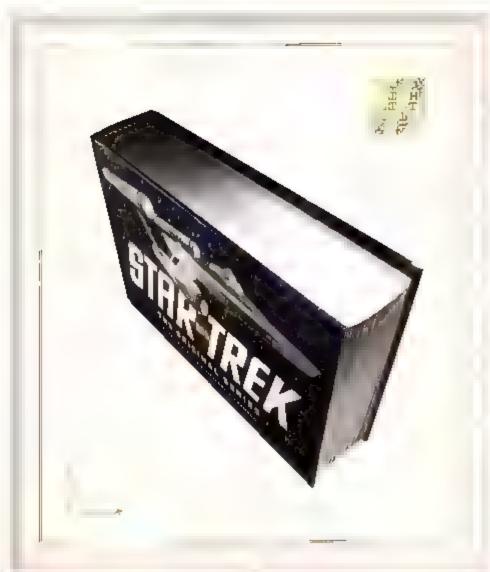
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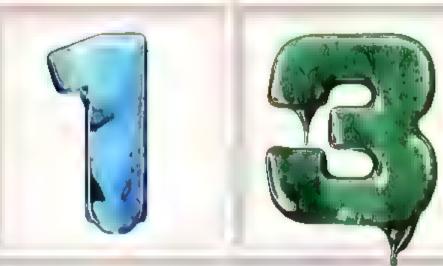


12 Nelson 50503 Industrial Nozzle

Proposition to the Armis mache breman style grip may be the only way to look one data will endering to prive out the intriple the flow of a The Astronaum to provide Commanding up to 250 pst, it can knock bird or you than second with in rid or But don't get a ried away. If the neighbor's ex are re, you should probably still to 911. \$20







Star Trek: The Original Series 365 (Abrams)

Nerd alert: Your Starfleet Combadge: shaped coffee table is madequate with a this paean to TOS. Hundreds of rare images and remastered strus are paired with stories from cast and crew about the 1960s "special effects" and inspiration, importantly over the complete of the 365° This horistockless of the corresponding of the stories are 484 2 days in the kingon imperial Calenda. \$30



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- HIGH WINGLESS SESSION WHILE CHAP
- tial spiritusing wisher in an ing and an income PC numming HealthyErdge * Tankta Remo le Display iPod Touch. Phone, iPad livich optional adaptor or select Garmyn fitness war thes. Measure graph and analyze your data over time FICA cleared Promo code ArackO for extra savings at Thomas in process. Eline time.

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READ, SURF, WORK, VIDEO-CHAT, OR TALK "HANDS-FREE"

Enter to Win the iPad^{**} Sweepstakes at uspkay-caddies.com. Customers say now did live without my Disclay Caggie²

"Hands fired is ands for use with Kindle" NOOK - Pad - (Preme" - Pad" - Pod - nuch" cell phones in picture - POAL e-readers, and more simply rest your élections device más stand and world. To this movie suit be view read more e-book is which you can propulate while you talk, yider uset montes.

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DROID DOES



With riffs, like hose how, an included to awe everyone on your off-list Droid X. Droid X. Global, and Droid Project Project ermed with access to thousands of free apps, lightness free processors, and an envertainment thearen of movies, games, and the Web. Three devices with one common goals a more powerful you.

Learn more this holiday season as dinjudges, ilm

KASPERSKY INTERNET SECURITY 2011. THE FASTEST, SMARTEST, KASPERSKY YET.



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JOIN THE BEST OF BOTH WORLDS

ONLINE SHOPS



1&1 Internet's CEO, Oliver Mauss, talks about the pros of entering the virtual marketplace and how it can attract online and tenerson shoopers.

The impact of the internet on consumer culture is a smartched. From business to customer the week and image just the information highway of has also become a popular also characterized.

Extendioning a website into an erShop can help increase proint and develop positive customer into innehios intoma a business perspective it's always a good interior extended products infline. In an hero ium site visitors into froi traffic at the physical store. Even defirer if a website has an erShop function for processing purchases, then he business has a second evenue for generating partir.

For presumers it's a matter of convenience. This search and our shase a product safely from their personal computer is a great example of our letteres desire for instant gravification. But for those who shill like to physically shop, researching a product before they leave home is likely as valuable in a Window Shopping 2.0.

The busy howay season is the perfect time to make a website really work to a business advantage. It's a sales thennel for some, a shopping convenience for others.

ber 19th to December 26th! Product exper's and special offers will be available thingou











www.espersoy.com/bloggers



The Ultimate Gift Bag



NE PROCESSAN NEUPSANY to enter and to full rates go in more stanting processant to the second second



AMERICAN OFFICAL ORIGINAL FILOT SUNGLASSES







CANON S95 CAMERA 5 + Du

DALVEY FLASK WITH TELESCOPING CUP 5 N











PLANON DOCUPEN X50 SA 3







APPLE IPAD 3G 5629

BRAUN Series 7



View the video on braun.com



have reinvented myself

Wear

many time

your face.







CRKT Eat'N Tool

Sporks are the mulets of casual during, but the Eat N Tool deserves some respect. Designed by a company that makes anodized aluminum pens and wicked combaticulous, it is loaded with a bottle opener is screwdrivel carabiner, and three wrenches. Better yet it can save you the indignity of eating pork-fried rice at your desk using a pair of Floonderogas for chopsticks. \$7

BREAK FREE



FROST THE FIRE

Smoke-free, Spit-free and Drama-free

Camo Silvi

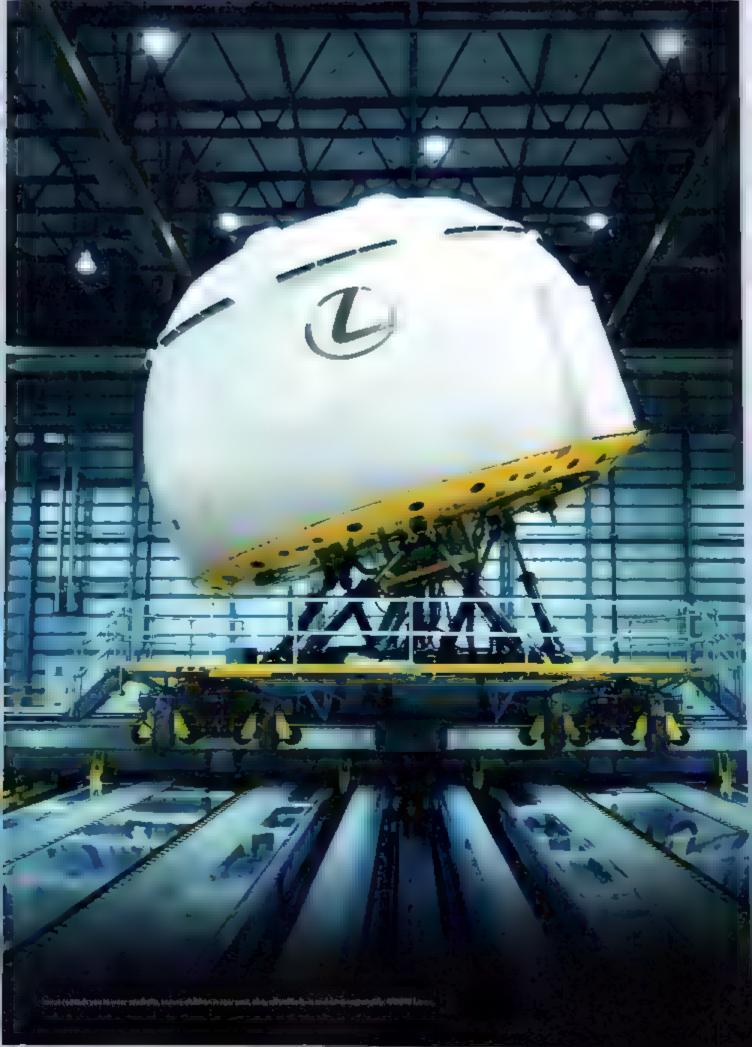
Cample SNU



cameisnus.com

#WEBSTERESTHOTED TO \$250 HE Adde you Had on your had not and no

WARNING: Smokeless tobacco is addictive.



not from the future, for it.

it went till up to 25 degrees, move in six elizacions at ence inne provide the senection of traveling 18¢ refee per hour. This is the world's ment advanced driving simulator. Where drivers in an extent Laure nevigete their way through a 360-degree virtual world. This allows up to analyze their reactions to real-world situations without real-world: enrosquences. Our hope is that semeday it may help up alwade a ser that will never have an accident. Sound: like solones fiction? We've been hearing that for years.

This is the pursuit of tomorrow.

This is the pursuit of perfection.





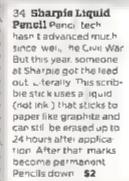
31 Goeva Family
GoEyib Cumbersome
metal frames and a host
of parts mean most po
table cribs just aren't
This pop up baby container uses the same
rigid milation technology as a kridboard sall
weighs only 11 pounds,
and has just four parts
the crib the mattreas
a lightning-quick pump,
and a backpack for true
portability \$250



32 Dixit Chris Baker
Sentor Ed. or Transck
of dusting off Trivial
Pursait at holdeny fotos
This year. I'll bring an
eleganty simp is board
game that Will have as
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board game ewerds—
which are lethe Gacars
but more cutthroat and
less riddled with production to the there is as
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33 Carválo RSCA
Did you know that you fancy carbon bike was likely assembled in a Taiwanese plant with dozens of other brands? Grab the top-of-, he line ride from Cervélo , hough, and you get a bicycle that's not only insanely light and strong but one that's built by the same Cairfornia engineers who designed t \$9,000





35 Pinel and Pinel Arcade BD's Trunk

Did you spend the 1980s fighting Space invading ers instead of daring? Relive those times of self-inflicted ceribacy paded with 60 classic titles. From Pac Man to 1942 this rig also sports a 1080p screen. But it's priced like a new Honda, so you'll have to start storing quarters again \$18,800



Hi Tac Art LED Map of the US Nothing

says "evil genius with a scheme for world domination" like a wall map with light-up pushipins. This US map comes with 100 LED pins push them into the map's foamy surface to make contact with the electrical ayers below includes two blinky lights to mark your lair of next target. \$200



37 Patagonia Men's Down Sweater, Special Edition

This transaccent ripstop by on she, is a sweller in tam, into its filled with premium Furupeal goode drivitance sports a snow is heading his shipeat saying a list and a rither in pocket that doubles as a stuff sack. It suit ard core yet is an weight to ounce jacket that's sleek en rught in the youth model to matter how fancy the peak you're camping out on. \$275

ELIMINATE REGIFTING.



I IIS FOLIDAY SEASON GIVE THE WORLD'S FINEST ULTRA FREM UM TEQUILA.

MADE WITH ONLY HAND-SELECTED 100% WEBER BLUE AGAVE.

SIMPLY PERFECT.





39 Chioé Dionée Folding Sunglasses

If Oney Herchad sung the white he would have been wearmy sunglesses at high park hey the sunsets. These rot or ames with gradient series for drown to a lens-sized pack operand vick heart of the sunset of each series of the sunset of the sun



40 Denon AVR A100

A mough it celebrates the past Denon's 100th-anniversary box 5's aight out to the future The 9'z channel receiver uses digital princesting to measure, analyze and correct or pom acoustics. Opional Air Play support means tican aix or who and a import app for your Phone lets you control this \$2,499.





Bowers & Wilkins P5 Headphones

The subtle by the first of the subtle expense and superson of the property of the subtle expense of the subtle



4. Freebord Bamboo Series All Around

has x-wheeler offers at the fun of show operding carving of fring spinning without the negatives (if times size a was inglastly your paycheck. A swiveling wheelor each end of the bamboo and-mapte deck ets he board move laterally, opening up a whole new dimension of moves.







need a phone as turbocharged as you





out phone is much more han us a phone is you wretine. After it quot all end of person who makes the most of every minute you have a phone har rose both population he 62 by HTT. The first smartphone with 46 and the writer 7 about rose network regivering the best of hoogie faster han you ever thought its skible **Exclusively from TiMobile**.





42 Betabrand Cornstcopia Shopping Bag Can't juggie a dozen

compostable bags of organic produce? This shopping backpack zippers into three separate compartments to protect your mizuna greens from your winged yams. And the comfortable shoulder strap makes you feel even better about supporting your loca farmer. \$120



43 Wilsthof Attaché Case 9778 Mere cooks

might roll up to a holiday dinner with a tower wrapped but the skinife Top Chefs-in-training come correct with a classy 19-piece assemblage of German steet suited for every taskfrom cacing the bird to balling the melon. A handsome case keeps it all in place, snootiness

not included \$900



44 Maji Knee Brace

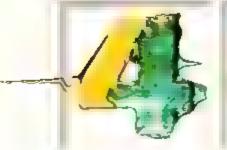
Leaky Ziplocs? Cumbersome ger backs? Insultto injury! We'd rather strap on this cryotherapeutic super-brace With its ill conformable quick-freeze bods and easy-to-adjust fleece compression wrap the Olympian-worthy rig is not only comfier than a mink-lined mitten it's cheaper than confisone injections. \$90



45 Rockler Sench Cookie The hockey

puck-sized Bench
Cookie just well, sits
there Under your laptop to jet it coo under a
piece of wood you're
sanding, under a couch
jeg you re trying to
keep off the hardwood
The textured top and
bottom keep it from
s iding so your projects
stay where you wanf
them \$12 (set of 4)







Public Bikes D8

The D8 is a versatile eight speed workhorse with just enough design y elements (pretty colors, chain guard, and a classic diamond frame shape) to make it covetable. Easy on the oll back upright hand elements along with 35-mm tires that can handle curbs potholes, and the Friday afternoon scramble make this your new go-anywhere, do-anything ride \$850



Every curve. Every contour Phi ps Nore co SensoTouch 3D. Our most advanced shave yet.



t takes a lot of technology to make shaving feel as easy as this. The Philip Noreico SensoTouch aD's GyroFlex sys em adjusts seamlessiv to the computs of your face its. All all ack sys ein utes three specialized heads o smoothly cur every length of hair. The result is a shave that is not on a flawless, but effortiess, on Find out more at www.pailips.com/sensotauch



MORELCO sense and simplicity





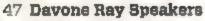
Nau Fluent Stask Organizational Bag

Made from 100 percent recycled, die cut woor fel "vau's or gaminaryle bag packs down small ver opens wide it reveal am it ude of snapping. sipping, and folding pouches Hang It over the tower bar or fold it. back and propit up on tself its as accommodailing as a geishal with way more pockets \$80



48 Yamaka Zuma

125 Non-italian scool ers typically have all the street cred of a baby blue Mazon Minta But with its strong frame. dual shock absorbers and fail knobby Light the Zuma 125 delivers the con it tops out around 60 mph and isn't confined to paved roads Best of all, you won't mind if your friends see you eiding it \$3,250



27 Barono nay opounds		
Scre, an Eames Joun	- + F	- 10
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your pad's mid-century vib-	1 1 N er	
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What I Want



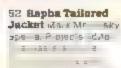
50 Photojojo Magnetic Lenses

You phonecam's he Only picture ake you B packing these days, so make belterwindese peepers that snap over heler singlens raa magnetic ring. The combination wide angle macro and fish eye attachments will improve your Twitpics and your phone-tographer bona ficies \$40



5. Pure Evoke Flow

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E FE C FE **5560**

53 Bear Grylla Survival Series Ultimate Xatte This Grylls

mee's up be blade rurs, brough the BS In addition to its partially serrated high-carbon stamiess stee biade it holds a sharpener and fire starter in its sheal h tis all you need to be the Boar (charming British accent and hotel room veycard not included, of course) \$80





Don I walk in anyone's bootstens when a HIKER'S GPS can provide satellite navigation aerial photography and ignoration information on the terrain ahead, in any location. These handhelds iet vou download maps and tralls, share waypoints with fellow hikers, send instant SOS with signals back to lase and even street an inventag photos along the way. Many units Include sitimater baremeter and compass kinctions, finiekeeping and solar charging to keep you on the go-wherever you go.

Savivy trekkers know to *pack right pack light when writering out into the wild ank) are inter-compact.

EVIL CAMERA—for Flectrons:

Viewfilmia Intercharges (Conservation of the Conservation of the local color video of the Conservation of the local color with these posterable pro-grade sheeter intercharges replace slow holly shutter our loss and super confect of the loss are easier to carry than below leasy Counters.

Always know which way the wind blows—all home, at the dock of out-in voice-we heat—with

STATION. DOGS STATION.

feat text setups track and compile complete atmospheric data and allow you to download if to your computer for long term weather profiling in your specific location. Remote sensors, eport process more illinate information from multiple points within receiving range of the lase unit so you won tineed a weather man to tell you when to set sail.

REDE A PROMEER







TOUCH COLLECTION: T-TOUCH II

An interveniving upon vicesign with court leavines (hat include all, migass, thermometer altimeter relative air pressure, a perpetual calendar and living agents. This Tilychidesign includes high-quality materials such as a dianium bezel and praceet, scratch-resistant, adophire crystal, and water resistance up to IVO meters.



THOUGHTS ON A SMARTER PLANET

A Spenal Guiller Birelaur Serie

foir the conversation as leading experts from GM discuss the innovations in science business and systems like transportation that are helping build a Smarter Plane. Meet this month's quest bloggers on Epicenter



Dr. Gavid Ferrucci is a Research Staff Member and Orbertment.

Group Manager at IBM's Tull Watson research Center the manages the Semantic Analysis and integration proparticle, which is focused on natural ranguage processing. NUO activities for discovering relevant knowledge in structures and ensure the intermation sources and ensuring the recursion a wide lange of search intelligence and information management solutions.



Julingoung Lee is a Research Staff Member and Manager at the IBM Towards in Research Center in New York, He is coment working in the Burnings information group. His research interes is include about computing, e-government service engineering and management business and it modeling, and model-criven business hand-formation.

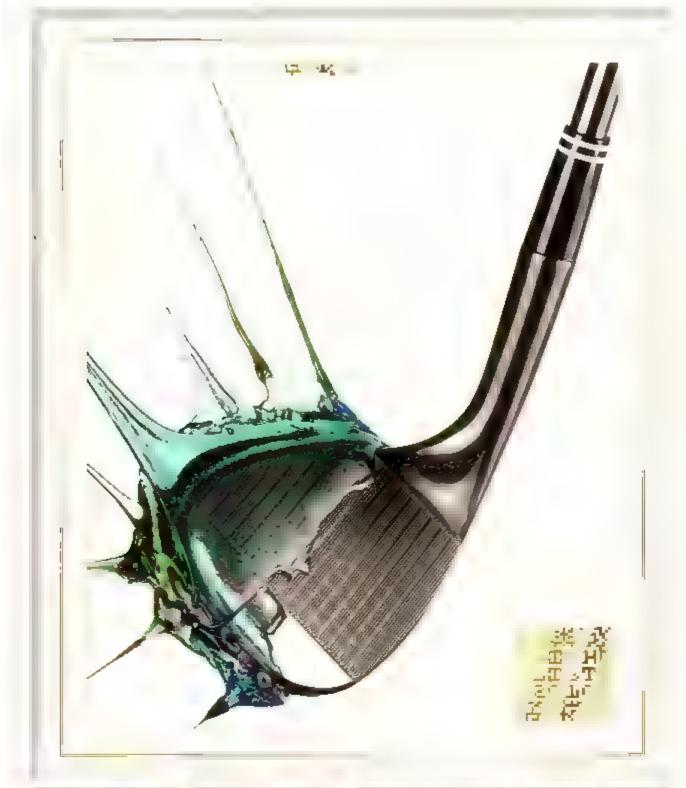


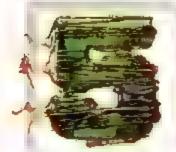
Or. Cavid Cohmis Director of Business informatics at IBM's T. J. Wasson Research Center He supervises a lesearch team focused or modeling, bransforming, and integrating information and business structures for an-demand solutions.

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Cleveland CG15 Wedges

Peblic Less so Irvo. or ne la apreternata a trait ministrata als Luff phesical apreternata a trait ministrata als Luff phesical apreternata solutions give your bulkersts. Increspiration fox New Build at his Toeses a para Luft and apreters answer that the major 2004 \$120



Your favorite Starbucks Christmas Blend is back and now available in Starbucks VIA* Ready Brew instant coffee and delicious whole bean coffee. Specially crafted with notes of sweetness and aged Sumatra spice, it's perfect for gifts or to make every morning special. You'll Jingle all day long.

SHARE IN THE TASTE OF THE SEASON WITH STARBUCKS.



56 DeLorma Earthmate PN-6DW The
built-in topo meps
on this handheld GPS
should keep you from
getting lost but in care
you do, it can send your
coordinates to overhead
sare it as you tex mes
sage You can dven use
lit to update your Twit
ter or Facebook status
'Reached summit Need
to resupply Please send

@beerrobot "1\$850



Kontol Trompe-L-Oell Wallpaper These sheets turn flet surfaces are doors into faux por tats opening all sorts of paint-free possibilities. Prints include a stair way to their a combs an escalator to the asyral plane and an array of flusory fringes. Wan to turn your headboard into a creepy thester curtain? Let the show begin. \$49-199

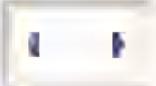
57 Auditorium Toy Boattail Racer

If box tops could still be traded for toys, this handcrafted wooden car would require a factory's worth of cardboard colliteral. But after scoring the Boattan yourd reset for I fe-literally. The 9.3-increasing aerodynamic heartoom toy with

to be passed down from generation to car loving generation. \$350

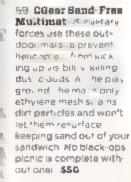






58 Icebreaker Men's Aspiring Hood

Synthetic fleece has nutrity from a door bosine or grap fleer elevation and fleer elevation and fleer elevation and fleer elevation and fleer elevation over elevation and a lacket or cool days when you don't want to look like you're about to tackie Everest \$200



BO Canon EGS 7D

Vive Ba fows. V dec

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frames policies of the
pro BO special Dunct

SD dec what you get
A 19 to see
shooting mode for stalls
and a right specials
class can put that compo

in its vows. \$1.699

G1 Clean Bottle

Is he eternal curse of the plastic water bottle. At some point in itside span some hing super tonk will collect. The bottom—something hat resiss all reasonable efforts at removal The solution? This two-side of visible with an easy-to-clean screw off bottom. Finally no more energy of this fortified with mold. \$10

Windows®. Life without Walls M Acer recommends Windows 7



Voca than just

Acer® Aspire® 5820

Parl Number A95820T 7883 (LX.PTG02 156)

- Genuine Windows® 7 Home Premium
- 15.6" HD LED-back; t display.
- 4GB DDR3 SDRAM 320GB hard drive.
- Intel® Core® 3-370M Processor

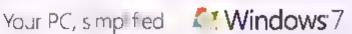
\$699.99

Ultra Thin









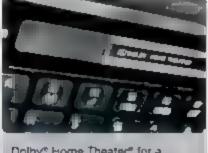
More than just

More than 8 hours² of excellent performance in a thin and light design

The Aspire TimerineX is a family of ultra-slim vet extremely powerful laptops ranging from the incredibly compact 11.6" and 13.3" models up to the super-sleek 14 0" and 15 6" versions

All feature ultra-powerful processors and graphics, 16.9 HD screens. Dolby® Home Theater® v3 and an HDM 113 port, yet each is only about one- nch thin 3





Dolby* Home Theater* for a powerfu entertainment device







The original Aspire Timeline series was the first to break the 8-hour battery life barrier and the Aspire TimelineX matches that and adds excellent power straight out of the box.

With Aspire Time ineX, power and battery life are no longer incompatible. One push of the PowerSmart button and the Aspire TimelineX transforms into a true all-day companion, or a supremely powerful entertainment device.









PowerSmart button for a true gil-day companion



Acer® Aspire® 3820

Part Number AS3820T 7459 (LX.PTO02 149)

- Genuine Windows* 7 Home Premium
- 13.3" HD LED-back-t display
- 4GB DDR3 SDRAM 320GB' hard drive
- Intel® Core™ I3-370M Processor

\$679.99

Windows®. Life without Walls™. Acer recommends Windows 7.





Acer^a Aspire^a 4820

- Genuine Windows^a 7 Home Premium.
- 14.0" HD LEO-backlit display
- 4GB DDR3 SDRAM, 320GB' hard drive
- Intel® Care® i5-460M Processor

\$799.99

More than 8 hours² of excellent performance in a thin and light design

The Aspire TimelineX offers more than just time: it gives you excellent performance with Intel® Core® processors.

It is only about one-inch thin? and available in 11.6", 13.3", 14.0" and 15.6" HD widescreen versions with powerful graphics.

* When reducing to already appeally. (3) elected for one billion bytes. Dense utillion may indicate verying adversary adposition. Total unex-composition depends adopted by stage, addings and operating conditions.

The Aspire 5620 is 0.91" • 1.4" high, Augin 4820 0.94" - 1,19" and Aspire 6630 is 0.91" • 1.4" high, Augin 4820 0.94" - 1,19" and Aspire 6630 is 0.91" • 1.4" high, Augin 4820 0.94" - 1,19" and Aspire 6630 is 0.91" • 1.4" high, Augin 4820 0.94" - 1,19" and Aspire 6630 is 0.91" • 1.4" high, Augin 4820 0.94" - 1,19" and Aspire 6630 is 0.91" • 1.4" high, Augin 4820 0.94" - 1,19" and Aspire 6630 is 0.91" • 1.4" high, Augin 4820 0.94" - 1,19" and Aspire 6630 is 0.91" • 1.4" high, Augin 4820 0.94" • 1.4"

Discover the new Acer Aspire TimelineX isptops at your nearest retail store or visit acecsess/itmelinex/en-us

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82 Samsung Hybrid Induction Electric Ranga Furning up the remperature of a range with actual hear is so 20th century Join us in the now with a stove top that uses magnetism to cook dinher Heating only the pots and panshand not a burner leaves your kitchen cooler and gives you more exacting temperature control. \$1,789

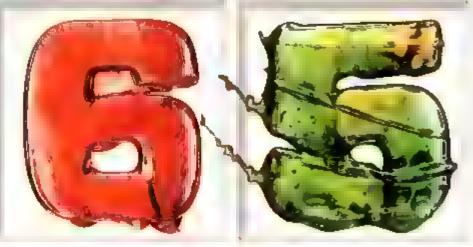


B3 Alessi Kaj Watch Karim Rashid, the designer Alessi Japped for its curvaceous time-piace, bills himself as a "cultural provocateur." The watch, he says, is symbolic of technology and the cosmost haprasenting reductive sensualism and the cyclic nature of time. What ever We think it is sleek looks great and comes in 12 cool colors. \$110



84 Philips DLU
WallDock Often the simplest reinventions are the most satisfying like this cond-free charging dock that (get this) plugs directly into the wall. No snaky conds to junk up your desk or for the cat to go suicidal on Just a pillow-top block with a connector that lets your Things rest against the wall while they recharge. \$30





Herman Miller SAYL Chair

The box. Acron like comfort at a fraction of the price, Yves Behar designed a piece of further as easy to make as it is to sit may day. Instead of rumbar supporting maters the created a variable of the kness mesh. Instead of a complicated for the order of acronate back into a suspension bridge inspired network of attressed catenaries. Look for it soon is a cost-conscious startup, early ou. \$400



66 RockPaparRobot Float Table This revitating table harnesses the miracle of magnets ha way we never dreamed of, using her opposing force to create visually silunning yet functional art. Sixty-bur magnet zed cubes are held in equilibrium by tensile stee cables, making this table both ethereal and surprisingly tactria. 52 000



67 Soma Infletable Surfboard Sag

Oropping in on a glassy barrel? Stoked Dropping your board in the parking lot? Harsh This rugged sack is ready for whoopsageddon Bayond the 600-deniar ballis is polyester shet and foam-reinforced rails air columbs integrated disparse force on impact \$200-320



Jaz Innevations Oven Rack Guard

How many fingerpoints can you lose on hot over racks before people start thinking you re of ser all will end of the business end of your racks, single your racks, single you to 500 degrees Fahrenheit. The only conceivable downside? You were pretty into Dexter. \$10



69 Hot Wheels H/C Stealth Ridge

They may not be quite as cool as George JetJoh's suitCase as/ocar, but these collapsible RC racers ac Jan y exist. The car unfolds with the push of a button, then jode ha and sides back into the phone sized remote control. Total weight 9.6 dunces. Odds of getting a parking ticket zero. \$25



70 Bolid Line iPad Case The iPad is great for lots of stuff (like reading wised!) But not typing Merc-fully, the folks at Sofid Line have come up with an elegant solution a Bluetooth keyboard build into a dignified eather iPad case in a diways with you yet never in the way. Good bye, Auto-Carrect you condescending robot. \$119



71 X-Rite Capsure

You found the perfect seru for your bedroom, but unfortunately it was on the poodle across he street this color reader grabs huss from almos any surface and accurally institute them to one of the 8,000 colors in its Pantone library ensuring you op one are only as limited as the world around you \$649



72 Microsoft Arc Touch Mouse

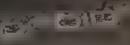
They can it a mouse but thanks to an it same in gairs who are in Artiotic needs to submore of a cat. Fer it and it wile itself \$B ransceiver connects it instanting to your or inputer from the \$0 feet away at tracks we con most any surface, and when turned off its smaller bug it out in mitry. In pocket Try that with your kitty | \$70



THE LINE ISN'T EXPANDING AS MUCH AS IT IS BREEDING

NTRODUCING THE DROP PRIL TO LICENSTAND AVAILAND AVAILAND

DFOIDE









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Google

ME 256 / 10 M

The state of the s

DECIDES



Gerstner Hobby Roller Cabinet

Adout it, ap timent divel e to search for the right tools. Having to use the diring form table as a workhelpel, doesn't help. Gerstner has the answer. The felt lined drawers in this handsome oak cabinet hold your hamiliers, hooks, and hacksaws, while the nonsup top provides a handy work surface you can roll to the job site. \$549



Badtolaria Bracelet Like a Kar dashian this biace of gets that elusive real-yet-artificial bar ance outcomes ght its waver is cultion of si icone rubber but it evolves honeycombs and butterfly wings interlocking outputs integrate your skin into the design, making even the naturally posty

effortlessly hip \$55



75 11-inch, 64-08 Apple MacBook Air It's remarkable that something so small can the this large. A sick the mount has received reckpad lets you gesture your way through your tasks. The face lime app makes video calls to friends with iPhones, and flash sto age means. I'ms on faster than a teenage gir at a Justin Bieber concert. \$399



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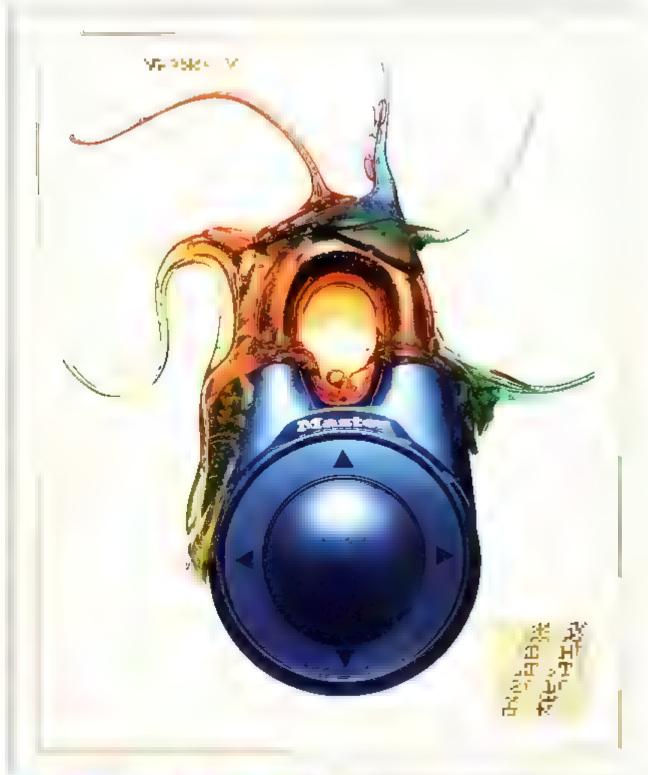


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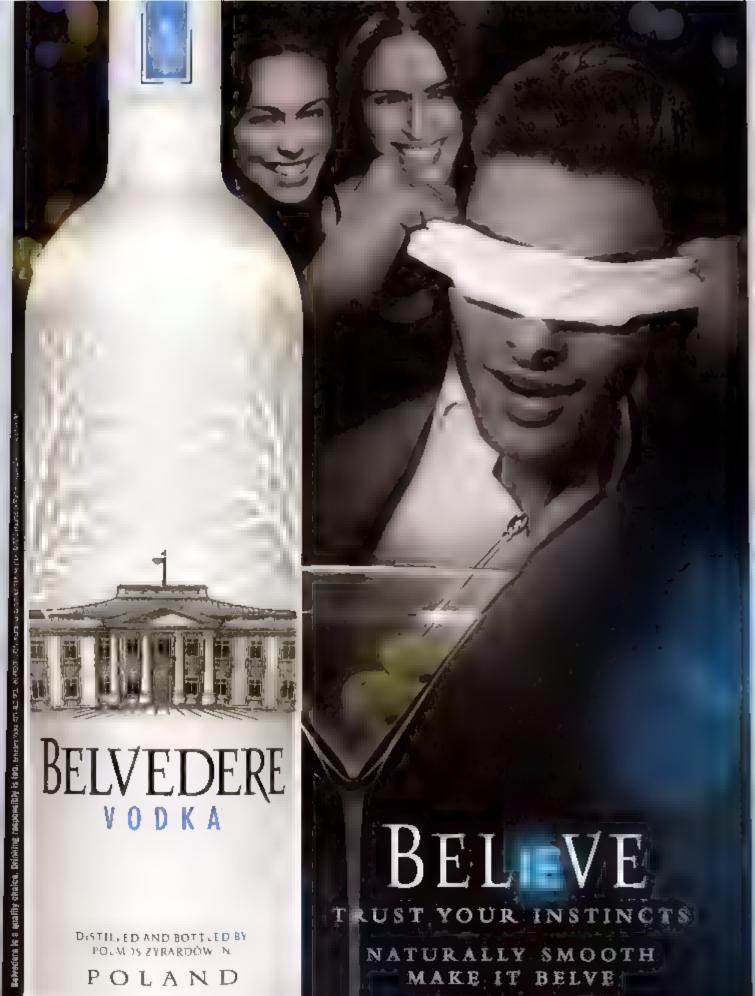






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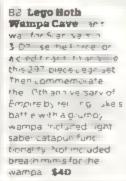


3





81 Uni-ball Kura Toga Pancil Obsessing about pencils is harning obsessing about pens and nothing beats he had found for expectative engineering. The name means are vestioned in vaparities and it into the invited mechanical clutch that rotates he ead object a chief from forming. Hey we wanted your was obsessive. 59



BO ART USEPhonePlus VZ for Elemberg, Story Editor ava ria est ay promy phanes his my newforg when his my newforg when his my newforg when his mo as a right a company The aid is not as as a traditional or angum headt one his spirate as P. a 158 and a company the model of the my dead of the

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85 Innate Deppie Cappuccino Tumbler

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86 Haio: Reach

Hey, M. Luces guess whar? Prequels don't have to suck exhibit A Halo Reach, Which trumps the original trilogy with highly evalved combat crazier weapons smalter baddles. and deadlier moves Steal h assassinations phyone? And remember unlike a certain scruffy no. I horder this Spartan always shoots first \$60



87 L.L.Bean Waxed Canvas Maine Hunting Shoe Your grandpa may have shot ducks in these boots but they'll pelfo: milushas wei at Whole Foods. The newly applated version of the 1912 classic hun er

boasts a hand-sinched waxed-canvas upper and a lifet me guarantee so they only get berrer with age Sorta

ike Grandpa 5129

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93 Green Toys

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94 Sackyard Bruins

SpikerBox Way leave genroscience to neuro. snightists? This physidiogical rig ampi fies neuronal spikes from biological scanimens A, achillo hedismem bered leg of an unsuspecting cockroach and listen to its neurons as an Phone interface creates visualizations. Oh and don't sweat the bug less they grow back: \$100



When that hottle hipster flirts you up in line don't be stuck blamma Teenage Dream because your (Pod is as impary). ous to gloves as random. encounters are to sec ond chances Bring the top 40 sans fear in these cashmere gloves with removable fingertips that allow for swiping. pinching, and shipping to Sleigh Bells \$60



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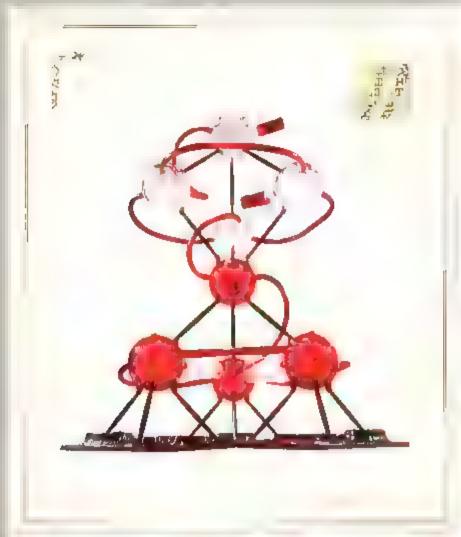
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Diver Alter you a of blinged ou unory watches with oversize diamond studded faces. the simplic yof he Legend Diver is a breath of fresh air This model combines the vibe of pirplane diels with an alligator strap and can go from formal to week end with base and aplomb \$2,200



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despitful, but this film
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at ing attached to its
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THE BODY HACKER

Tim Ferriss told us how to optimize the workweek. Can he teach us how to max out our bodies, too?





IM FERRISS IS a self-made lab rat. The author and entrepreneur has been subjecting hanself.

to audacious experiments in physical training and nutrition since high school. In perhaps the most extreme undertaking, he packed on 34 pounds of muscle while dropping 3 pounds of fat in 28 days. He recounts his adventures in a new book. The 4-Hour Body. An Uncommon Guide to Rupid Foi. Loss, Incredible Sex, and Becoming Superhuman, a title he reverse engineered from data he collected from the clickst ream and Twitterverse. 9 The book is a sequel of sorts to his first book. The 4-Hour Workweek. A med at young men curious about wealth, lessure, and foreign trave. Workweek was rejected by some 26 pub.

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lishers before Grown took a chance on it. Its wrat mix of anything is-poss; ble enthusiasm and practical productivity tips turned out to be the formula for a publishing phenomenon—it's still riding best-seller lists more than three years after that bookstores.

Now, in The 4 Hour Body. Ferriss, 33, turns to an entirely different set of keywords weight loss, muscle gain, sperm count, and female orgasm. WiRED asked contributing editor Gary Woof—cofounder of the Quantified Self, a blog about self-tracking and self-experimentation—to interrogate Ferries about his history as an n-of-guinea pig, his experience with performance-enhancing drugs, and his faith in heretical recipes for radical self-improvement.

When did you start experimenting on yourself?

When I was a competitive wrestier in high school, I was prone to overheating. So I had to find ways to dissipate heat. Manipulating hydration was really my starting point Old you dietaiot?

Din Annaiera ioru

In my senior year I cut from between .75 and .78 to 152 twice a week I did it by pure dehy dration. You have to be careful with that, because you can have organs fail if you go about it the wrong way. I don't recommend it.

How did you learn about these dark arts? I mean, you're a teenage wrestier Old your coach care you in? No, my only help came from other wrestiers who themselves had tested the methods of previous wrestlers. When you have good data, such as pound per-hour loss rates, you can learn quickly through the and error, also read a lot about electrolyte balance. I wanted to find out what was, list below the threshold of life-threatening.

How far did you take it?

By the time I was 21. I had refined the approach, and I was using diaretics as well I cut about 20 pounds to compete in the kickboxing nationals; then, after weighing in I hyper-hydrated. I weighed in at 165, and the next day I stepped onto the piatform at





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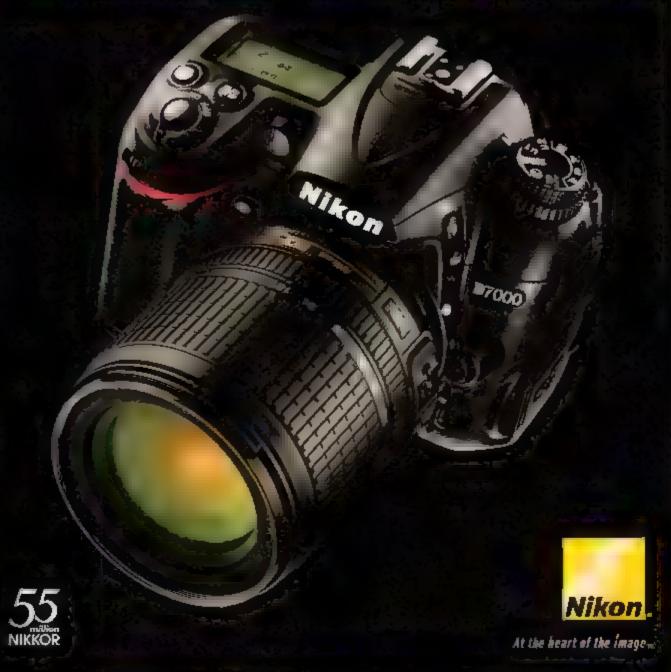
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رَوْنَ وَمَا \$100 \$100 مِنْ المِنْ مِنْ عَلَيْنَ إِنْ كَأَيْسُمُ مِنْ فَيْدُونَا فِي أَنْ فَالْمُونَا

There's an entire generation of male athletes who have never gotten off the ephedrine-caffeine-aspirin stack.

193. It was pretty funny. My first opponent stepped onto the mat and started looking around because he thought he was on the wrong platform. He was like, this can't be right! I won a gold medal.

Diuretics eren't banned?

Yes, in many cases they are Not only because of their weight loss effects but also because they can mask other drugs. In any event, at the higher levels of athletics this sort of thing is the rule rather than the exception. In any sport where power, speed, or endurance is a determining factor, everyone is using drugs.

You get your start with this stuff in the '80s, just as the shedow world of performance-enhancing drugs seemed to be hitting the mainstream. It looks like you were able to stand on the border of those two worlds.

There are a lot of things that can be learned from the darker corners of athletics. You have doctors who view bodybuilders as cave. Jer amateurs of science. And then you have the bodybuilders who view the doctors as too conservative to do anything interesting. So I've tried to become the middleman for putting some of those pieces together Aside from the diuratics, what were you into in those days?

The cocktail that I began experimenting with was ephedrine plus caffeine plus aspirin. Basically, you're hitting the accelerator.

These are all over-the-counter drugs.

Ephedrine was for a long time. But people were using it to manufacture methamphet amine, so they started blending it with other drugs to make that harder to do. But I don't recommend it anyway. There's an entire generation of male strength and endurance athletes, even recreational lifters, who have never gotten off the ephedrine-caffe neaspirinstack. The process of getting off stimulants is really horribie. I'm more cautious now. Hey, am [pulling a bottle of pills and a piostic pouch of fine powder from a paper bag]. I brought you some goodies. I don't

know what the law is governing these, so let's say I'm giving them to you for visual reference only.

OK, right.

God knows I don't want to be accused of "intent to distribute."

[Examining the bottle.] Bood old piracetam. I wrote about these so-called smart drugs in the early '90s. I'm still skeptical.

The pouch is micromized resveratrol, which you can't buy over the counter

Where did you get it?

Igot it directly from the manufacturer. Resveratrolts fascinating stuff. One of the best sources of information about it is the Immortality Institute. They have a forum where some people are in the 500 Club, as they call it. They we been taking 500 milligrams for years, it's a really great source of data.

Do you take it?

Not anymore. There's anecdota, reports of joint pain, and I ended up having incredible pain in my elbows and lesser pain in my knees.

What do you think is the most dangerous experiment that you tried for 7he 4-Hour Body?

Thad a chemical cocktail injected to reverse injuries. It included BMP bone morphogenetic protein, and there's a risk of it fusing your vertebrae. In retrospect, I probably wouldn't have included that

There's a long section on sexual performance in the new book, where you get hands-on instruction on what you call "facilitating" female organic. Why did you want to include this?

This book is entirely a product of polling and asking people what they want to learn about. When you try to find out about female orgasm, you get into a lot of misinformation really quickly. Separating fact from faction is really hard. So I figured, why not just do the tests? Sex is so key to quality of life. The way it's discussed is always vague because



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In the Lab With Tim Ferriss

The derivation of the Arman and Second of the second of th



we live in a puritanical society. I mean, they won't show supples in advertisements, so they're definitely not going to talk about the anatomy of the clutoris.

There's a shortage of sex advice?

I think most of the sexual advice our there is bullshit It's based on a book that was influenced by a book that was influenced by a book, There's no testing. The sex is right in the subtitle of my book, and most people ,ump right to that section.

Speaking of testing, I sesume you market-tested the title of the book?

Oh yeah, with about 4,000 people, in three separate rounds. Testing is bow I ended up with the title of The 4-Hour Workweek as well. That was one of about 12 titles I tested using Google AdWords, I bid on keywords or phrases associated with the book content. I.ke "world travel " "40IK," etc. And then the ada that were displayed had the title of

like that, I say, "Bullshit."

I'd respond the same way. And it's going to be shelved between The Five Minute Solution and whatever-The Four-Week Solution.

Right. I have a book I bought out of perverse admiration called The One Minute Father 1thought. I need to have that book eround just to use it as an example of things I hate. But The 4-Hour Body actually ren't like that. It's a big, thick book full of nonobvious advice, written by somebody who's been on a dangerous mission of selfdiscovery. I'm not necessarily going to follow your advice, but I'm interested in what you've discovered.

Look, the titles are just about getting people's attention. Whether they say, "Wow, that sounds really interesting," or "That guy's full of shit"-as long as they pick up the book or click on the ank, I don't care

Most sexual advice is bullshit. It's based on a book that was influenced by a book. There's no testing.

the book as the headline and the subtitle as the od text. And then I nest looked at the esekthrough rates.

What was on the pages when people clicked through?

Nothing just "under construction." I have to tell you, The 4-Hour Workwask did nothing to reduce my work-Week. In fact, I took the title as gure provocation. You know, if you'd said, "Improve your work efficiency. by reducing the time you spend on email," OK, that's more plausible— If less interesting, I read the book, I still work a lot.

The basic premise was gaining control of your time so that you can reduce your hours to a volume that you want. For most people, life would be boring without meaningful work.

less the same thing in The 4-Hour Body. Lots of people want to become superhuman without putting in any effort. To be honest, when I see a title

You discuss polyphasic sleep: Rather than sleeping six to nine hours at a time, we're supposed to take, like. 20-minute naps every four hours. Do you really think this works?

I have never been able to do with less than six hours a day for more than four weeks But 1 know several tech CEOs who have used similar schedules for approximately a year before social needs intervened.

One of your footnotes points to an analysis that debunks polyphosic sieep. So, what's your battom line?

One of my goals is to catalyze an army of good self-experimenters, part of my job is therefore to train readers to do their own homework Richard Feynman famously remarked, "It doesn't matter how heautiful your theory is, if doesn't matter how smart you are. If it doesn't agree with experiment, (('s wrong,"

Contributing editor GARY WOLF (gary Baether.com) wrote about the first computer in issue 18.11



Always safe.

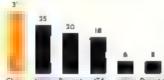




MAY THE BEST NERD WIN

Kids from all over the world do battle at the algorithm olympics.

Gold medals awarded at the International Olympiad in Informatics (1999: 2009)







EAL W STAST CHANCE for in erns conal giory and maybe America's, loo, begins with a sound like a hippocrunching irrough a field of dry leaves the

want of 315 computer prodigies at 3.5 workstations ripping into 315 gray envelopes in amson. "You have five hours," a voice booms across the packed gymnasium. "Good rack." "At his desk on the gym floor. Wu, age 18, pushes his giasses up on his nose and squarts. He shouldn't need luck. This is a coding competition—the International Olympiad. In Informatics, held in August at the University of Waterloom Ontario. Canada—and Wuis one of the world's top competition programmers. The just graduated from Baton Rouge Magnet High School in Louisiana; his parents are chemical engineers originally from Shanghai, although Wu was born in the US. In seventh grade.





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he took first place in a nation wide contest for middle school ers called Ma hootints. (There's a Nea, Wy fan etab on Fadebook that celebrates bis "awesome math sk .ls.") Yet accord ng to Rob Koistad, the US team 5 57-year old head coach Wulsmerely "very good" at math His true gift is for creative problem solving with code In 2008, the first year he competed at the IOI he finished 10th out of 300 contestants. In 2009, he moved up to seventh pince Since hen, he has competed in six coding contests run by kols ad's organization, the . SA Computing Olympiad he won three of them with perfect scores. We has the relaxed disposition of a star a luete; he's confiden, without ever letting on that he is America's Great Nord Hope. "I hate to say he's the Tiger Woods of compa er pro gramming," Kols ad says, "but he shares the properties of cool calm under pressure, and consistent consistent performance "

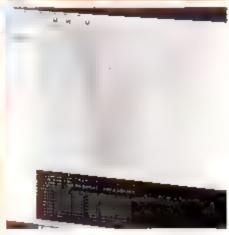
Cool or no, there are a lot of expectations on Wulashe shuffles through the contents of his gray envelope. Four stapled packets

of paper. Four word problems designed to test programming prowess--specifically. the ability to crunch incred buy hake and complex data sets in seconds. For each probiem, Wu Brst has to choose an algorithm, or series of computational steps. Then he has to code it. Wo's cosches have unlied in o his brain 16 standard algorithms with names like Two-Dimensional Convex Hull, Greedy Eulerian Path and Knapsack, an arsena. of mathematical machetes for backing through thickets of numbers and in Wu's years of coding he has flexed and massaged the algorithms into no fewer than 100 soln levarietions. But what makes 101 so difficult, unpredictable, and yes, even dramatic is that compet tors ke Wu may have to invent and code their own ad hoc algor thms on the









spot. One-of a kind solutions to one-of a kind problems. From scratch, in five hours.

It's gruering work, so Wustarts out slowly. He flips through the problem sheets, scribbing an occasional note with his mechanical pencil. The dominant sound in the gymchanges from the shuffing of paper to the clacking of keys, but Wolresists the urge to type right out of the gate. "Typing is Appnotic," Kotstad says emphatically. "When you retyping, you renot sowing problems,"

But Wuls nemesls, the Boy Wooder of Bearus, does not subscribe to this theory.

A fall kid with skinny arms, short brown hair and a bashful smile, Gennady Koristkevich started competing at foll when he was When Wulwas Li, held dn't even know about programming. At last year's IOI in Bulgaria, Korotkevich upset Wu and everyone e se to take first piace, becoming the youngest winner in the contest's 20-year history. This year Korotkevich is back again, at the ripe age of .5. looking to deprive Wu of his last shot at whith a glOr Next year Wu which is college and therefore the .gible.

Their sty es coa do it be more different While Wuis retailed and thoughtful. Korot kevich is a jackrabbit. "My parents are programmers, and now I like it as well," he says in tentative English. Unlike the sociable Wu (who interned at Facebook, ast summer Korotkevich squirins when I talk to him about his abouties, insisting he's nothing special. At OI be sticks close to his Beigrus teaminates and coaches. The gossip at iOI is 40 percent about the word problems, iO percent about which country's coaches have the best liquor (Canada, hands down), and 50 percent about Gennady Korotkevich.



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Ask the kids who's going to win this year and regardless of whether they're Kazakhor Japanese, Swission Egyptian, they'll invariably grunt, "Belarus Belarus." And then they'll start laughing as if to say, haven they on been paying attention?

This morning, Korotkevich began typing five minutes and 40 seconds after the competition began. Like several of the elite competitors at IOI he can code as fast as he can touch-type. Three minutes later Korotkevich completed his first program. a more 22 mes. Pascal

The three approved IOI programming anguages are Pascal, C, and C++ The Western kids, including Wultend to use C++ the most modern and stree in lined of the three Bull Pascal still has a following in Eastern Europe and Asia, even though coding or

s like "building a car with list a screw driver and a wrench "says Troy Vasiga this year's folichair

Korotkey of up mads his Pascar code to a network of 10 Linux machines running a set of grading programs. Appropriately there are no human graders at 101 instead, robots provide immediate results, which in 2010 were posted for the first time on a tive on: he scoreboard. A few seconds after Korotkevich submits a solution, his program receives a perfect 100 and the scoreboard shows him in first place.

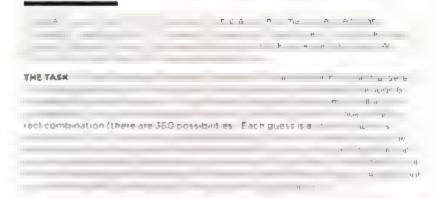
At the 20-minute mark. Korotkevich posts a perfect score on his second problem, going up 200 points on Wu.

Meanwhite, Wu picks up his mechanical pench, chicks the lead a couple of times, puts it back down. He likes to alternate between a mechanical pencil and a pen, drawing graph totes in ink and labeling the vertices in pencil, which allows him to erase if he wants to backtrack. He satil, thinking, still strategy, ng. He has yet to write a single line of code.

At the one-hour mark, Korotkevich runs his score up to 255. He's cruising now.

Wu a small, shirt with black hair that is less unkempt than that of your ordinary need cranes his treck and glances around the gym. aking in the scene kids from 83 countries, their desks arranged in clover eafic listers of four looking despite their races and nationalities.

ONE MURDER, TWO SOLUTIONS











WUSSOLUTION

The second second

Lines of code



t ke members of the same tribe. Many are wearing the black Google T-shirt that was stuffed into their IQI schwag bag, and most of the rest are decked out in team. .ssue poios or T-shirts from prior competitions, (Notable exceptions, the three young women in head scarves representing Team Libys, Korotkevich is out there somewhere, a mysterious wratth in a blue pullover. Wu has no idea how we., his rive, is doing-during each competition period, the kids can see only their own scores-but the contest organizers certainly know. They're up in the gym balcony, tracking the live scoreboard on their laptops. And it looks pretty bad. Wu is not even or the board yet. This is a stoughter in the making.

And then, 70 minutes into the competition. Wu pinces his fingers on the keyboard.

COMPETITIVE PROGRAMMING may strike you as history a worst idea for a sport shuffleboard minus the bracing speed the Scripps National Speiling See without the adorableness. In fact, battle-coding in a supprisingly popular global pastime, ndu ged in by thousands of high school and middle-school programming clubs and turbocharged by websites like TopCoder, a sort of social networking and gaming site for algorithm nuts. At TopCoder, kids and adults alike battle one another to solve IOI style problems for cash prizes. Member ID neal_wu shows up in red, signifying elite status. To get your name in this color you need a TopCoder rating of 2,200 or better To become a "target" - the elite of the eliteyou need at least 3,000. Wu's rating is 3,248. making him number six in the world. (Korot kevich also has a TopCoder handle, tourist. and is ranked number five.)

As if TopCoder weren't enough, many of the pational programming teams host their own sites, where they post sample problems and practice exams. The USA Computing Olymp ad site is run by Koistad, who also holds a weeklong camp every year for 15 eate American coders - at the end of that week, the four-person IOI team is selected. With his thick shoulders and deep bellow

ing voice. Kolstad seems more like a football coach than a computer guy. "I don't know how to do most of the algorithms," he says. He prefers to focus on mental preparation and attitude: "Just like Vince Lombardi, who, of course, didn't play football on the field with his players,"

The Training Pages section of USACO.org is open to coders from all countries, but Kolstad says it's dominated by the Chinese, who have been commanding the team portion of fOt for as long as anyone can remember ("n large years," in 101-speak). They also dominote the International Collegiate Program ming Contests. In February, a team from China's Shanghai Jinotong University won the ICPC world championship in a stroll, while several American universities fied with 16 other countries and foreign universities for 14th place. The frend is the same in both contests. Western declare, Eastern ascendance Since international collegiate coding competitions began in 1977. US universities won the first 13 ICPC contests in a row and went on to earn four titles in the 1990s. The 1993 champion squad from Harvard included a young Tony Hsieh, now CEO of Zappos. But the last American victory came in .997 and since then the contest has been ruled by Russin, China, and Poland "We're getting outtrained," Kolstad laments.

China's approach to IOI is proof of just how serrous the contest has become and how tied up it is in notions of national prestige and economic competitiveness. To earn a spot on the Chinese team, a coder has to beat 80,000 of his compatriots in a series of provincial elimination rounds that last an entire year. Then he the competitors are almost all male has to sit on a stage in front of hundreds of onlookers and answer questions in English like "How will you show the traditional culture of China to the foreign friends?" says Yi Wu, a member of China's team. China is an extreme example, but pretty much every kid roaming the Waterloo campus this week has beaten hundreds or thousands of countrymen just to get here. Even the losers are brilliant.

Universities and corporations have taken notice, treating the IOI competitive programming's crowning event -as the equiv-





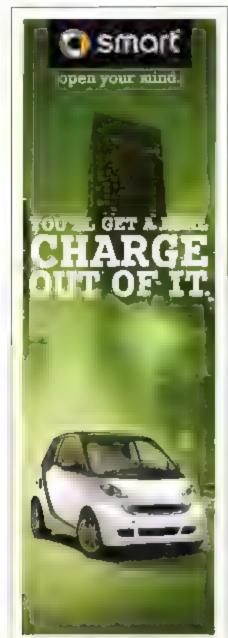
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alent of the NFL Scouting Combine. This year's primary sponsor is BlackBerry maker Research in Motion, whose CTO spoke at vesterday's glitzy opening ceremony featuring the Warerloo Warmors cheerleading. squad. Other sponsors include Lenovo. IBM Amazon.com, and Google. It's understable able that so many tech companies would want to nurture (Ol: Google is famously built atop an algorithm called PageRank, Twitter's Who to Follow" feature is a set of algorithms. Amazon's entire site, from sales rank to prod act recommendations as a system of intertocking algorithms. [O] may be an academic competition, but its purpose is to advance udiscipune that has driven the growth of the Internet and turned geeks into billionaires. we in Waterloop what's at stake for the kids is a college schotarship, but what's at stake for the industry is something larger, the abilify to keep innovating new algorithms to make sense of an increasingly complex world.

The organizers of IOI, acknowledging this happy nexts, have decided this year to sneak a few problems with real-world applications into the coders, gray envelopes, particularly one called Languages.

By the time Wingets to Languages, around the 90-minute mark on the first day of competition, he has already made up much of the ground he jost to Korotkevich, posting two perfect scores on the two easiest problems within seven numutes of each other Now he's got three and a half hours to crack Lan guages. Good thing, because it's a helt of a curvebait Given 10,000 text strings selected from random Wikspedia articles written in various human languages, create a program that identifies the language. The competition's science director, Gordon Cormack threw Languages into the mix out of sheer currenty inegenumely didn't know what the hirst answer was and hoped the kids would show him. Now they have: Wu's 227 line with gram analyzes the frequency of each letter in the string (English has fewer its and as than, say, Czech), narrowing the possible tongues to a handful then refining the guess. by breaking the string-into four-letter chinks and analyzing the frequency of the chunks. With this strategy. Wu can distinguish 56 languages, everything from Azerbanani to

Vietnamese. B5 percent of the time

Wu finishes the day in seventh place, for lowed by his three US teammales: Michael Cohen, an energetic, curly haired E. ah Wood look-aake and the son of a physics professor, Wenyu Cao, from the prestigious Phillips Academy to Andover, Massachu setts, and Brian "Hamster" Hamrick, from Thomas Jefferson High School for Science and Technology in Virginia. (Koistad and the gids toke that the US ream boosts "two and a haif Asians." with Wu and Cao as the two and "Hamster," whose father is Caucas an as the half . They're no sipuches This sum mer. Cao studied advanced mather MIT and Cohen studied physics at the University or Maryland, All except Hammick will begin day two within striking distance of becoming the overal, winner In fact their performances are good enough to push the US into a vir tual tie with Cluna - a shock even to Kolstag

The coach is giddy at the chinice to bring attention to the American coding program. The only kid returning next year is Cao, so koistad will have to recruit a new team to carry the torch, on top of securing new funding, as he does every year (Team USA is iself an ad hoc back; one of its main sponsor for some reason is IBM Canada. Nothing could make Koistad's job easier than a spinshy rout of China.

As for the Boy Wonder from Belarus, he wrops up the day in first place, II points ahead of Wu. He submitted 400 times of tight efficient code and heid the lead almost the entire five hours. Once or twice, when an opponent from Bulkerie or Singapore overtook arm, it was almost like he could "sease the scoreboard," as Kolstad puts it Then he'd shoot back to the top. The day's events have dealt a fatal blow to the theory that Korotkevich is a mere coding robot, an uncreative automaton. .f .t were true. Lan guages would have fried his circuits. But he aced st, achieving slightly higher than 90 percent accuracy "It was interesting, actually " Korotkevich tells me when I stop him on the steps of the gym, his hands clasped behind his back and eyes darting from side to side like a panicked squirrel. "I am not used quite, to such problems." He tells me that the rumors are untrue. He practices on v

If Korotkevich were a mere coding robot, the Languages problem would have fried his circuits.

three to four hours a day, not six to seven.

There's nothing to do now but wait for the second and final day of competition. Some of the Eng. sh speaking kids pass the time with an afternoon game, their version of Taboo. At a long table in a dirring hait, each compet. tor writes down four nouns on slips of paper cramples them up, and tosses them into a hat The kids will have to guess the words from verbal clues. The hat has with words to warm. a coder's heart bubble sort polynomial, integrution. Also ezar, Lakers (a tricky one for this growd), senal killer, and scandalously a word whose clue is given as "a way of showang affection with your tongue."

"French kiss," Wu guesses correctly as the table explodes into giggles

EVERY YEAR AT 101 there's a question so difficult that I humbles even the adults who try to crack it. This year that question comes on day two. Catted Saveft, it's a classic adhoc problem, not solvable with any standard alsoritam. Savelt asks the coder to calculate a table of the shortest distances through a large transportation network consisting of 1,000 cities and 36 hots. Then, to get the full .00 points, the coder has to cram that table into an incredibly small space and decompress it without losing any information. It's as if someone maye you an inflated beach ball and said, here. pack this into a cookie jar. If you find the air. nozzie, it's simple Otherwise, it's impossible

At .Ol if you don't get full points on a program, you're allowed to tweak it and resubmit it, which means that with most 101 problems you can start off with a rough approach, a kindgy halfway solution, and optimize it as you go But you can't do that with Savelt If the key insight cludes you f you don't grasp how the transportation network can be represented with Is and Os the integers, not binary code) and therefore compressed quite easily-you'll spend hours bashing your head against your desk. Cormack, the science director, tells me that he anticipates Savelt will stump the vast majority of the kids. No more than 10 of them will get the ful! 100 points, he predicts, and it will take the whole five hours.

Wu, wearing a Facebook T shirt denim shorts, and runnant shoes, rips into his gray envelope. As on day one he pages through the tasks with gentle unhurried motions. When he gets to Savelt, he thinks about it for a white, then puts I down and decides. to start on the day's other hard problem. instead, called Maze, whose difficulty is more ake climbing a ladder than a sheer rock face. Maze requires the coder to draw a series of mazes of various sizes and complex ties. If off on a classic unsolved question in compuler science, it's a type of problem called NP-complete, meaning that it's possible to find a good-enough solution with a combina tion of creativity and moderate computing. power but to find the best possible solution could take trillions of years. The first couple of mazes are small enough to create by hand but as they get more labyranth ne, the lads have to write code to generate them

Meanwhile Korotkevich starts on the two easiest problems, called Memory and Traffic He solves Memory within five minutes and Traffic within 19, and by the 90-manute mark he earns partial scores on Maze and Savelt

Wit is off to a characteristically slow start posting a measly IB points to Korotkevich's 274 (He submitted an incomplete version of Maze to make suze he was on the right track; if he weren't, he would have gotten Opoints rather than 18.1

Up in the gym's balcony, a Dutch technol. ogy entrepreneur named Kim Schrijvers is doing ESPN style color commentary on a live web feed. He notices the gap between Wu and Korotkevich. "Is Neal toying with us?" Schriivers asks.





Rob Howard for Town and Country

This is not the Internet. Feel free to curl up and settle in.

Magazines don't blink on and off. They don't show video or deliver ads that pop up out of nowhere. You can't DVR magazines and you can't play games on them.

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Perhaps that explains why magazine readership has actually increased versus five years ago. The top 25 magazines continue to reach a wider audience than the top 25 primetime TV shows. And despite the escalating war for consumers' eyeballs, readers spend an average of 43 minutes per issue.

What accounts for this ongoing attraction? Why do nine out of ten American adults choose to spend so much time with an unabashedly analog medium?

One enduring truth: people of every age love the experience of reading a magazine, even when the same content is available online. So curl up, get comfortable and enjoy the rest of this magazine.



Itakes walk get a cup of enfiee come back, record the scoreboard. No change. Wu in 272nd piace: Korotkevich in first. Two hours left. Over on his patch of gymnasium floor the Boy Wonder from Belarus allows him self a slight display of emotion. He smales. Cormack rushes up to me in the balcony.

"Gennady got Savelt, he got it," Cormack says, maxing a noise I ke he just coughed milk through his nose "Wasn't hard enough he got it with two hours to go. Amazing It's not only the speed that impresses Cormack— it's the fact that Korotkevich used a sophisticated compression technique known as arithmetic coding one that requires graduate student level chops. I ask Cormack if he a surprised to see a 15 year-oid

A few more points on Maze push Cao up to fourth place

"You have exactly five nummes."

"It is the desperate time." Schrijvers says
After all his banging away on Maze, submit
ting his answers nine separate times, Wilhas
entered the top 15, But his Savefi program is
still getting only 50 points out of 100. With
three minutes left, he makes a final Saveli
submission: 370 lines of C++. He clicks to
reveal his score: still just 50 points.

"Time is up "

Wu slowly threads his toothpick arms through the straps of his backpack. As the gym empries, he lingers at his computer staring at the screen, as if he can't quite believe what just happened. He still doesn (Artud the jubilation, one of the uS coaches nods to Wu: Nice job, man. "Assassabbb," Wu multers dismussively. He'll baye none of it

Someone spots Korotkevich. The organizers crowd around him, patting him on the back, congratulating him on his second straight win. Kolstad watches Korotkevich qualifrom the attention and shakes his head. "He was ahead for 98 percent of the competition. The question is," Koistad says slowly and with atter gravity, "will he die a virgin?"

At the closing ceremonies two days, after the medalists clamber one by one on ola banquet hall stage for grip and grins with various dignitaries. All are maje except for a lone pale-skinned gir, from Poland. Will claps for silver medalist Hamrick and his

fellow gold meda. sts Cohen and Cao.

I catch Korotkevich sneaking a look at himself in a mirror before his big momen! As he ho sts the enormous fucite winner's trophy, his frail shoul ders nearly buckle from the weight. His grin is epic

Afterward, a slightly burnmed Wu files. home to 8a on Rouge to start pack nu for his next adventure freshman year at Harvard. Amonth later, I give him a call to see how he's doing. He tells me he's taking four classes. Expository Writing, Ch. iese. Mad: 55 a course so infamously punishing that it has its own Wikipedia entry), and CompSe 226. a graduate level class taught by Michael O. Robin (Yes, the Michael O. Rabin, Turing Award recipient and cocreator of the Rabin-Karp string hashing algorithm.) Wu reports he is the only freshman in the class, and he says that his algorithm knowledge is progressing to "way-more-advanced theoret" cal things" than 101 contests tend to cover including "ridiculous" new types of functions.

With stoying with the idea of joining the table-terms this. He has also met with the coaches at the Harvard Computing Contest Club, which sends two teams to the International Collegiste Programming Contest every year. For locks, be took the tryout test for Harvard's team. He came in first place.

5 11/10 14 15 1007 1/49

IASON FAGONE: All Jagone writes for GQ and Philade phia magazines and is working on a book about the future of cars.

Cao makes a tweak, compiles his program. Segmentation fault. Crap. Something's off ... half an hour left.

who knows arithmetic coding: "It would be foolish of us to say that we are surprised by anything that Gennady does."

With an hour to go, he's stuck in 23rd place struggling with Savelt. The Bash of insight hasn't but him. His teammates are having more suck, though. Cohen posts a perfect score on Savelt and shoots up to fourth place, and Gao thinks he's almost there. He makes a tweak, compiles his program. Error Segmentation fault. Crap. Something's off with his variables.—Ha, fan hour left.

"It is quite amazing," says Vasiga, the contest chair "how time pressure focuses the mind in terms of optimization. Now is crunch time, when all the neurons are firing and fingers are starting to go at light speed."

Cao changes an n to an h, and his Savelt program suddenly runs. He submits it, and the next time the web scoreboard updates. It shows hwith 23 minutes left! Gohen in fourth place and Cao in fifth.

"You have exactly 15 minutes remaining." the contest errice booms. know how he did in relation to everyone else but he knows that he underperformed in his last 10%. The unflappable Tiger Woods of computer programming rooks dazed

Schenwers and his play by play crew roam the gym with a video camera, capturing foot age for the live feed. They spot Wu and stick a taptop in his face so they can record his reaction as he learns the final standings.

'So this is you, Neal," Schripters says, pointing to the web scoreboard. "You are in 13th place "The top 25 are all considered gold medansts, but that result still stings. We looks away and purses his lips, clearly disgusted with himself.

Meanwhile, Koustad enters the gymbeeming "Troy, guess what?" he booms at Vasiga. "We won your contest!" Cao and Cobenbeld onto fourth and fifth places, and "Hamster" Hamrick was 43rd for a silver medal. That was good enough for the Americans to pull off a stunning upset, beating China. They're the new world champions.

"This is absolutely, absolutely brilliant," Schrijvers says.



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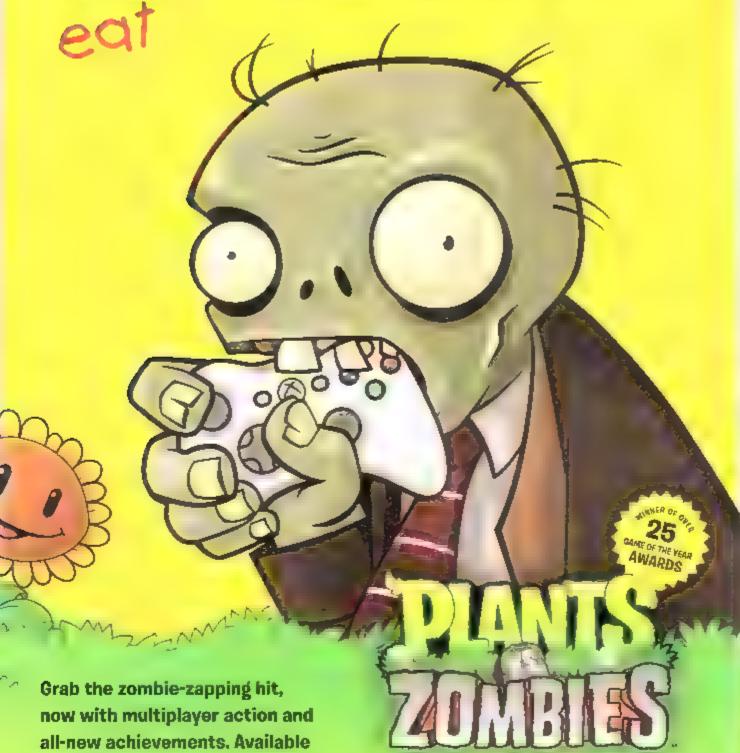
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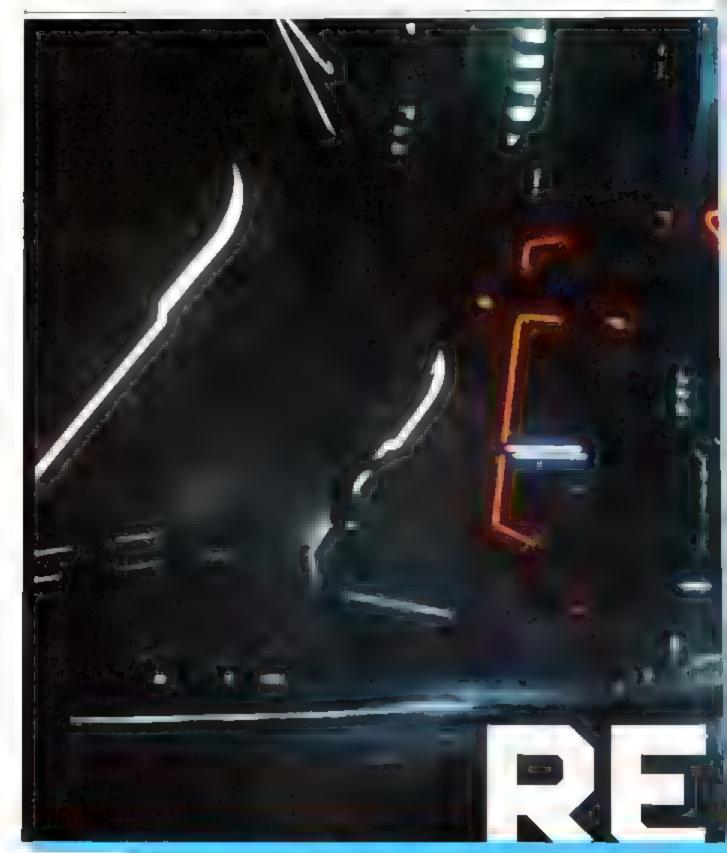




FEATURES 1

TRON LEGACY SHOPPING HACES 66 INSANE CLOWN POSSE BLODD SIMPLE

PARALLEL UN VERSÉ 208



The original TRON introduced us to a







director collaborated on the script to ensure the production design meshed with the story and vice versal, they even ran an early cut past the story gods at Pixer all ast to make sure the move would actually you know "work" They spent years figuring out how to make Fron Legacy contect to its antecedent. Fron Legacy is a sequel everyhody already knows that and the people making it knew from the start that to be a success their movie had to evoke the rock and feel of the origina. Fron

Yes. Tron The motive force behind this winter's biggest chematic event is a weightle so, if dop from 1982 that no one really remembers. Seriously Try You il get bits images, most yijeff Bridges inchalk white armorithat rippies blue Glowing Frisbee fights. Bibble shaped motorcycles trailing walls of light But the story? Something about a hacker maybe? He gets beamed not a computer and fights a grant Bruce Boxleitner is there. And the villain is a

computer program with a Bertish accent.

Don't lee, bad Fren Legary director Joseph Rosinski admits to having nit ally been fuzzy in his source material. He didn't see Trod until he was a teenager in the rud-1980s on VHS. He was more of a Raiders of the Lost Ark kind of guy.

So why all this fuss? With almost a century of back catalog to draw from, why should Disney go all-non a sequel to a movie that's generally regarded as not very good? Because Tron succeeded at what science fiction rare y attempts and almost never pulls off it predicted the future. That little movie distr. ed and made visible a power ful idea that inside a computer is a world. a place you or some part of your can go and twe This idea didn't make much sense at the time, of course. It was utterly new and poorly expressed, and the technology to pull it off didn't reality exist. A movie about the magic and power of computing also happened to be the first movie made

by computers—which, sadily, were then neither magical not powerful. No wonder it fizzled at the dox office. The metaphor, however—tyes on

The film would never come close to an Oscar but that doesn't make it unimportant Nobody ia is about roberspace anymore see filmreter Wilham Gibson had sust coined the term when Transamenut But that's what the movie gave shape to—a "consensual had mountain," as Gibson wrote—bright lattices of logic unfolding across that colorless void." Though Gibson says he had an entirely different look in mind. "An issue of Omin magazine that contained one of my earliest cyberspace stones also contained a preview of Tran." he says. "If Disney was into that stuff, I thought. I wasn't even remotely ahead of the curve."

Gibson's stories were way out in front of course hat Tron was the first main

stream popiculture artifact to have similar insights about what cyberspace was and what it was going to become. The world it envise med and the metaphor is he ped create have become more resonant over the decades, as the movie essentially came true. Every ling that inked weird in 1982 now looks no ver perhaps, but a so protound ling ghtfur even.

For Tron. Legacy to succeed where Tron tailed, I has to sim, taneously sus a nake in egrity of and improve upon the first film. Lucky for Disney the tools havely exist to make the movie that the ongina, team was groping for but never quite found.

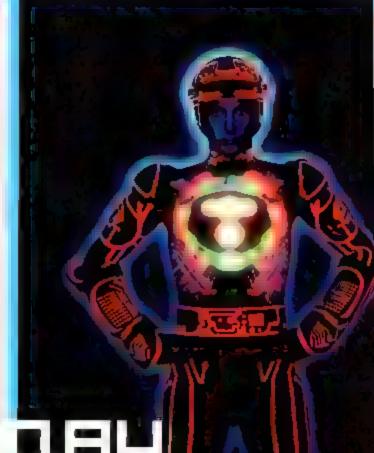


Tro. starte in the mix 1470s as a TV commercial of near 11th cliques maistury black adverses from the first and a mixture of created in mixes Steven it is the first at wenty semething carector who was convenced that the character much be an amove created exclusively by combiners. Today fusberger is a shaggy goaleed guy who to ke actic, lately about him baby boomers misopprehended the messages of Carl Jung and Joseph Campbe. He's a compelling mix of Obi Wan kenobland the Dude. "There was a reed in amongst a certain group of Hollywood furunakers that with all of these toots." Givas ready, o be taken advantage of Lisberger says. And mixes like who was going orget there first."

on 1978. Lisberger me Bor we MacBird a midlered development executive at Universal Studius, and the two hit off Mal Bird left on versal and ioned us berger a company. He was working on early computer anima ion him a and Trophooked gorgeous. But beyond a sense that the plot should have something ordered a videogames he didn't have a story. "We had to dea how Hollywood worked." I sherger says. But when I met Bonne i thought this is a person who shows what a two ved in doing a script."

MacBird runned int to be perfectly engineered for







the job. She had studied programming, with paper and penci. In jun or high school in the 960s. In college at Stanford, she made punch cards for a PDP-11, working late at night because it was the only time students could get access to the machine and playing a rudimentary version of *Pong* with lights on the computer's control board. At Universal, she tired illustrated to put its records into a database. "I'm not a computer programmer," MacBird says. "But I love the way a real computer scientist dreams."

In Los Angeles' only computer store, a dive or a Santa Mouca side street, MacBird found the writing of Stewart Brand - creator and editor of the Whate Earth Catalog, cofounder of the seminal internet network the Well, and corner of the phrase information waits to be free. From Brand she, earned about the

work of computer scientist Alan Kay

It's a name that should make you feel a great disturbance in the Force. Kay was present at Douglas Engelbart's famous "mother of all demos" in 1968 in which Engelbart introduced the mouse a wir dows based operating system. Pypertext Journg, word processing in sasif porkichops, bacon, and masan came from the same magical animal. A year later Engelbart's ablwood dibecome the second hode on the baseent internet.

Kay's work was even more out there. He was reading Marshau McLanan's rants on media and immersing himself in the learning theones of Jean Plaget and Seymour Papert. He datso been thit on the head, "as he put it ovid 1968 demo at the University of Tunois of the first flatscreen display. Seeing tha lea Kay to anticipate a time when computer this would be small enough to pair with it formake a aptoplessentially. He coined the term personal computer, and working at the Xerox Palo Alfo Research Center, way

and his team combined Enge bart's innovations with their own work to create the first graphical user interface. This is the thing that hispited a young Steve Jobs to create the Macintosh computer—which inspired a young BullCates, o create Windows.

So in 1979. MacBird set up a meeting with key "He spent several hours with as " she says, "and regaled as with stories about computers and learning and science and churd psychology " For her "Xerox PARC's bear pagichairs and bohemian off " ude had a kind of glamour "It was early nerd culture, and " was adorable" just loved it " MacBird says. She persuaded Lisberger to hire Kay as a consultan

"We'd do't have the word avalar yet. We





ta ked about agents "MacBird says "Alan had the notion of an interigent agent that earns your preferences and needs and can function in a reason of end less encyclopedic information." Shi loaded as of these wees into what she describes as a further but deeper version of the movie. "Nothing wrong with light cycles and so forth," she says. "But I think there was more to than that originally." Kay believed that a universe made of connected computers was also in a loving organism a vasinet work with nodes and branches to infinity a is serving some actis as humanitarian vision of a utopian full me.

Those concepts became the source code for Tron. The lab at tech gian. Encome the company at the center of the movie, was

based on Kay's lab at Xerox PARC and the Stanford Artificial Intelligence Lab Bruce Boxleitner's buttoned down program on land character Alan was based in part on land named after) kay. MacBird even sent versions of the script up to Xerox PARC via acoust ic coupler and edited them with Kay on the Alto. Xerox's way ahead of

Its time PC "I think that makes me the first screenwriter ever to use a computer to edit a script," she says. Kay showed her how to select a font and she chose the closest approximation to Courier so the studio suits would think it was typewritten. (To this day, screenwriters strip use Courier.)

Lisberger had planned to fund Tron aide-



pender typ but when that didn't pan out, he took it to Disney. The studio was trying to get a grip on the relatively new phenomena. of the summer brockbuster and the science fletion epic. Fox had entinked out Star Wars Colombia Pictures had Close Encounters And Disney made . The Brack Hote, But to a certain faction at Disney, Lisberger and his studio felt axe a good fit. "We had a staff of an mators, and we approached the project as an artification," Lisberger says, "When we came into Disney. We had storyboards. we had production art." He even shot a few minutes with computer-generated effects and ammation to give the bigwigs an idea. of what they would be getting.

As Tron evolved, it became more of an oddball project. "We were a threat to the animation department. We were a threat to the special effects department. We were a threat to conventiona..." we act on "Lisberger says. Star Wars made a kind of sense with its knights and princesses. But combine

the avant garde production design of Tron and multiple outside contractors doing CG with what turned into a very religious script about living "programs" trying to commune with god ike "users" in the real world? In the actual real world, hardly anyone had ever touched a computer. You can see how that story would seem strange.

The late 1970s and early 1980s were an exciting time for technology-the cusp of the future. The Apple II plus went on sale. in 1979. At Industrial Jugh. & Magic in Catiforma's Marin County, the men who'd go on to found Pixar were working on CG effects. for Star Trek Hand inventing George Lucasy deogames di vision, William Gibson was inventing cyberpunk But in Hollywood it. was basically still 1970. In the end Disney and Lisberger touted, he movie's computer. generated anagery, but in truth, very attacof he flim was actually CG. Some of the makes were striking —the light cycle chase, the climacric battle against the evil Master Contro. Program but with the funky light up costumes and shifting, vertigo inducing backdrops, they were occasionally outright weird. Trangot better reviews than people. remember - hey, Roger Ebert liked it - but he film never really elicked. And It had the misfortune of premiering the same sum mer as Steven Spiciocty's ET: The Extra Terrestrial R d.ey Scott's Blade Runner, and Star Trek II. The Wroch of Khan It was a year of nord classics, all of them arguably better made, more ambitious, more coherent. "The night before the movie opened The head of marketing came to me and said. 'We're no ing to do really well. Our expectation is to do \$10 million . his weekend, maybe. more, "Lisberger says, "We did half of that "

Not everybody tost. Areade and some console games based on Tron were successful. Lisberger went on to make a comedy called Hot Pursuit. John Cusack's fourth-best film MacBird ended up with a somewhat modest story credit but in the end she got a lot more out of the deal. Her coulaboration with Key thined out to be what Hollywood screenwriters call meet cute.—MacBird and Kay fell in love and got married in 1983.

Tron, however seemed destined to be forgotten—except by those few thousand preadolescent kids who watched it, rapt while their parents wondered just what the heakind of Disney movie this was, anyway. And some subset of those kids went on to become directors, continue

CYBER

Tron may have provided mainaccess pop culture with its first depiction of the digital realm, but a handful of other books, movas, and games have augmented our vision of how hunsors imporphobit bytes. A.P.

1975

The Shockwave Rider | The electronic detwork in John Bronner is prote-cyberpunk nove was he backdrop for this early portrayel of a saypotlike hacker fomenting areas on

188.

"True Names" | Writer vernor
vinge a inche piane was he ha deniction of the digrar world ha ctual place where computer

E NOTE OF

Neuromencer | William Bibuon s
ic to gave his online would a
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he despliption sounds a lot like
for a mystee, with a duals of

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Habitet Meda by Judentilim Games, it isn't exactly an RPG but is garterally considered to be the Pirst online graphical via his world.

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The Lawnmower Man | Amore uibsonia i valeion of cyverspace Same glowing iumpaulte as in Troxi, though

1895

Hackard (A glowing-grid version of cybe space halles of los evike life or yachire like slicing shirynopologrid ikk chiqilinga (

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19 of Time apprehence Crusoria
thort story depicted a surreal and
tim less reviend the appeared
via virtual learly goggies
As Keanu might put it "Whos"

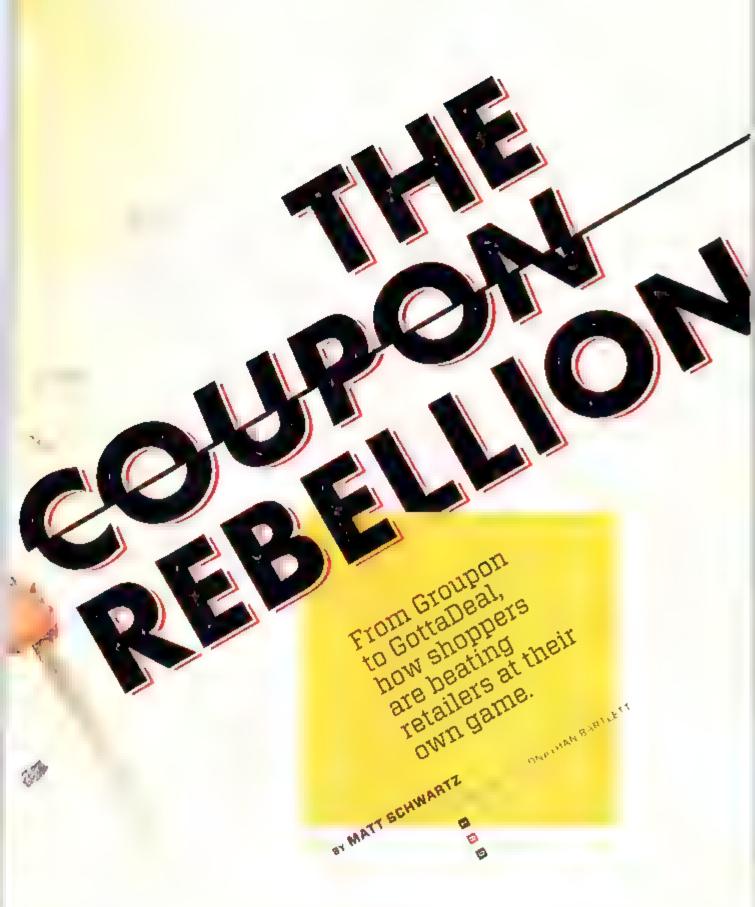
. 989

The Matrix | A digital universe that looks just like the real world in facility in single inguishable except to the "cheer codes" that arry-de single roowers

2003

Becommit Life Airee-form, selfcorrected introduced whether Sinter a with a principle available to make the times





IN THE ECONOMIC WASTELAND

of the past three years, the biggest success story has been a website that gets us to buy stuff we never knew we wanted helicopter flying lessons, hot stone massages, professional photo portraiture, obscure ethnic food hot air balloon rides. More precisely, what we buy at Groupon the two-year-old startup that, with projected revenue of more than \$500 million

this year, was called the "fastest growing company ever" in a recent Forbes cover story—is the right to buy al. that stuff at a buge discount, so long as we all act fast. In other words, what Groupon sells (as its clever name indicates) is coupons, but with a social twist. It's been such a huge moneymaker that scores of copycals have emerged, including other startups like LivingSocial and Scoupons. Established online presences like Yelp and OpenTable have also jumped in, the biggest and most recent entrant is AOL, which in October announced its own Grouponcione, Wowcom.

Like its competitors. Groupon makes money by turning its audience into bar

gazn junktes. Every day, customers check their email or the Groupon website to find out about the daily deal in their city. Groupon already operates in more than 100 cit es nationwide.) For the coupon to become valid a certain number of users must agree to buy it. But then, after the offer tips they have just 24 hours-or less, if it sells out to pay their money and lock in the markdown. As Andrew Mason, Groupon's 30-year-old founder and CEO sees it, this fantanging window of opportunity gives people the license to induige in experiences they wouldn't atherwise pursue "That's the beauty of the model," he says. "We're using these game mechanisms to trick people into getting out of the house and doing the things they always wanted to do,"

Take a step back though, and what compourepresents a some though far bigger. It's the main streaming of a new current in American consumerism an attitude born of the Internet's DIY ethos and nurtured by the hard economic times. One might call it retail hacking the reconception of shopping as not just a full time job but a contact sport is acrumin which consumers in breasingly refuse to buy on the terms dictated to them. A who einer

work of so-called deal hunting sites, each with a large and devoted community, has spring up for users to trade inside tips about little-known bargains, the largest of these sites. SlickDeals, has more than 700,000 registered members.

In this passionate consumer underground, techniques for chiseling a few percentage points (or more) off a sticker price can quickly spread to millions of shoppers. The process of seuring a DVD player or even a new razor to the growing ranks of self-educated buyers is becoming as tortuous as selling them a new car Gethuman.com, a continuously updated list of direct customer service lines and telephone-prompt guides, is under-



mining the ability of companies to resolve calls with automated systems. Consumers who have learned to haggle on prices at large chain stores-Target, Home Depot Best Buy, and more—share their stories and methods on siles like the Consumerist, a blog that has become a hub for retail hackers. Whett Elv. Rosenstock, a 29 year old social media consultant from New York. wanted to cancel his Vertzon service and buy the new iPhone, he found a loophole that let ham leave his two-year contract with no termination feet after he made this argument stick with Verizon customer service, he posted a detailed how to video on YouTube that has been viewed more than 80,000 times.

As recently as five years ago, it would have taken years of dedicated tria, and error for consumers to develop these techniques on their own. Now thanks to forums that aggregate the collective arge to save money, nowice deal hunters have access to FAQs and tutorials addressing everything from the inventory cycle at Target to methods of hand ding hostile cashiers. For those who know where to look, these sites form a sort of Wikileaks of secret deals, a searchable directory of rock, bottom prices, and money-saving techniques as labyrinth as and cumning as the retail universe it seeks to map.

In this world, each product has two prices. First there's the suggested retail price—"a blatant lie," as Jeffrey Tan, a top-ranking. SlickDeals user calls if paid by everyone else. Then there's the real price, available only to the deal-hunting eate.



dier distributed small certificates entitling the bearer to a free glass of his new tonic, called Coca-Coia.* Ration books distributed during World War II established an indelible If you know where to look, there's a sort of WikiLeaks of secret deals, as labyrinthine and cunning as the retail universe it seeks to map.

tink in the American mind between the act of clipping and the virtue of thrift. By the 1960s, coupons were a fixture on the retail scene, one industry leader, S&H Green Stamps, claimed to print three times as many stamps as the US Postal Service. Shoppers could accumulate the stamps from participating stores and then redeem them for such rewards as teast ers, clocks, and insurance policies.

At the turn of the millennium, coupon use began to slide, from 4.6 billion coupons redeemed in 1999 to 2.6 billion in 2008. Then the recession but, triggering a couoon resurgence, driven in large part by the Internet, before anybody had even heard of Groupon. Millions of unemployed consumers rediscovered the coupon as a way to generate money-or at least cut household costs-during their idle hours. And retailers responded to flagging sales by unvigorating their offers. The value of the average coupon has risen from \$1.09 to \$1.37 since 2005. Redemptions grew by 27 percent in 2009 alone, with Internet coupons leading the way, rising more than threefold. Online coupons have proven stickier than their paper counterparts, accounting for around I percent of all coupons issued but nearly 10 percent of those redeemed. According to Nielsen, the "enthusiast" couponers who use online offers most are likely to be relatively young and high-income, with 60 percent making more than \$50,000 a year.

The retail industry is still adjusting to the new generation of coupon shoppers,

many of whom aren't content to limit themselves to one or two deals. per trip. Some of these so-called super-couponers have perfected a maneuver called stacking -- combinng multiple coupons on the same item, generally a manufacturer's coupon with a retarier's. Another technique is rolling - using earnings from retail loyalty programs ofor example, CVS Extra Bucks) to buy products that earn still more points, generating a continuous flow of extra earnings. The online boards teach all these tricks and more "Don't be scared. You can do

this!" begins one Shick Deals FAQ, before it launches into a series of links to newspaper coupon-insert schedules, store-by-store coupon acceptance policies, and thousand-line wikis with deals alphabetized by product and coded by state. There are coupon swap threads as well as RAOk random act of kindness) threads in which coupons are given away to the first user who requests them. Members of "coupon trains" circulate their surplus coupons through the mail taking what they need and adding what they have "Coupon fairies" act as anonymous benefactors, bringing extra coupons to the store and leaving them on the applicable products,

"These wack-jobs who spend 20 hours a week stacking coupains? That stuff drives us batty," says John Morgan, executive director of the Association of Coupon Professionals. "They dance all over the rules. These zealots may be following the letter of the law, but I don't think they're respecting its spirit."

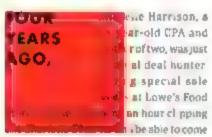
Indeed, manufacturers and retailers do not issue coupons with super-couponers in mind. Sometimes coupons are designed as "loss leaders" for stores, which hope to hire newor irregular customers inside. Other times they're inducements for consumers to try—and hopefully get hooked on—a new product. But most often they re used for what economists call price discrimination. Consider a product that costs a retailer \$10 and selfs for \$15. Somewhere out there the

^{*}To see this ur-coupon and read its backstory check out "First Coupon Ever" in ease Lift, LL online at http://wrd tw/firstcoupon

A DAY OF DEAL HUNTING

theory goes, are price sensitive shoppers who would pay \$.2 digiven the chance—stim a profitable sale. By targeting this group with a \$3 coupon the store generalles at a margin of \$2 per unit, without giving up any of the \$5 per unit profits from the price ansers hive group.

Super-coupulers complicate this theory. considerably. Accounting a Donald Lichten sto - a professor of marketing at the university of Colorado at Boulder super couponers. have ear led orgnore acq school at aty the pleas ire and value one obtains from. say a was dicerea. Instead they peg the r shor ping decis pas to transaction at acty thed fie is ice herween what they regerring the cerem for and what they thank the cereal is supposed prost in ather words super componers don't perce ve a grocery temps food, a least not out they exit the start and serve it for preakfast on the shelf and withe carr the super or aponer evaluates procacts with the corn eyed on curus of a reader



back with perhaps \$125 worth of groceries for \$25. Then, at church, she met some other mothers who told her they could turn \$25, nto \$250

"My competitive type-A behavior locked in," she says. "I asked myself, what am I not doing that I should be doing? What's out there that I don't know about?"

So began what Harrison calls her "hardcore" phase. She started buying four or five
copies of the Observer each week, whatever
she didn't use, she would swap online at
Hot Coupon World, where she soon rose to
the level of moderator. She tearned how to
time prices and decipher barcodes, and she
happily shared her knowledge with anyone
who wanted to learn. As the economy himed
sour. Harrison began to distribute grocerles from her own "stockpile" (which grocery
dea, hunters in evitably acquire) to local
fantiles in need. On a site called Charlette-

Mommies.com she developed a fourwing of area methers, and together they established an informa, code among hemselves—share what you know, share what you have and oney all store and coupon pointes.

One morning at September Harrison and four of her discriptes gather at a coffee shep to trade couponing stones. Har rison is dressed sensibly in sandais, in ack pants, and a black brouse with silver applique. On the table in front of her ment to her conseant and line! Coke is a spender business envelope containing more than its coupons.

One actiste by Miliz explains her own attitude toward the project - try to keep it for I walk in introduce myself to the manager and say You better call the police I mgetting ready to rob ya! " Miltz, who has a breezy manner and two bright yellow swoops of hair, holds in her hands a massive purple border containing maybe a thousand coupons—some clipped from Sunday newspapers, some printed from the Internet some purchased on eBay. "I wonder why they waste money on advertising," she muses. "We'll buy whatever they want us to buy as long as they pay as to buy it "

This is the fourth day of Super Double Coupon Week at Harris Teeter a southcastern super market chain. Each day this week, marris Teeter will double the face value of most coupons to a maximum of \$1.98 apiece. So Harrison has been visiting her local store once a day, every

day, armed with a carefully selected battery of coupons. Her goal today is to bring home \$80 worth of merchandise while spending less than a dollar out of pocket.

Harrison enters Harris Teeter shortly after 11 am. She selects a cart, makes a quick right toward the produce section, and picks out

Warning: Retail hacking can be a full-time job. Hera's what your daily routine might .ook .ike .f you got serious about tracking down bargains. (All times Pacific.) — M.S.

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11 PM Sconthe Entre & Chaice lab at Dentinews a urated bargain-honing site

MIDNIGHT Check that Mor Tell Substitution of the velocition new debts on Xbox, May-Stollon and othe gaming invitories.

an organic red bell pepper for \$1.99. Taking the first coupon from her envelope—\$1 off organic produce, \$1.98 after doubling—she places it in the front-left corner of her cart. "I'm on a mission here," she says, her shoes tapping out a staccato rhythm as she moves over the tiled



Victent I



How a pair of outcast rappers in face paint built an insane Clown Empire.

BY BRIAN BAFTERY



VIOLENT I WANTS TO PLAY ME A SONG.

It's a late summer evening in suburban Detroit, and J—whose real name is Joseph Bruce—is anwinding in his home studio, a compact yet heatly kept space decorated with wrestling belts and posters of Eazy-E and Michael Jackson. As one half of the white-rap duo Insane Clown Posse, Bruce, a rolypoly 38-year-old, has recorded or produced hundreds of songs here. But this one, he says, is a favorite. ¶ "Do you know who Color Me Badd is?" he asks in his sleepy-bulldog voice, a lit blunt jutting from his mouth. "They were the shit. We did a song with their lead singer" He cues up 2007's "Truth

Dare," a thumping, midtempo number that sounds a bit like a nursery rhyme singalong, complete with playground taunts:

double-dore you. Swallow every pili in the bottle.
double-dore you: Tongue-kiss a tallet seat at McDanald's.
double-dore you. Dig up a body and take it home.

Give it a sponge bath, and do what you want with it

As the track plays, Bruce's musical partner and childhood friend. Joey Utsler (aka Shaggy 2 Dope), sits quietly to the side, nodding and rubbing the gothic Ditattooed on the back of his shawed head. Utsler is 36 and tean, with talon sharp fingernals and the sand papery voice of a lifelong smoker. He tends to be more voluble than Bruce, who's pausing the song every few seconds, explaining how he paid Bryan Abrams—the R&B smoothie behind such 90s bits as "I Wanna Sex You Up"—a more \$10,000 to guest on the track. The two men have even seen talking about signing Abrams to ICP's Psychopathic Records, a labe, better known for makeup wearing, murder-obsessed rappers than for preening lovermen.

The song ends, and Bruce beams in his chair. For an ode to hygienic necrophilia, "Truth Dare" is surprisingly hummable. It might even be one of Insane Clown Posse's best songs. Of course that's not saying much, seeing how ICP's discography comprises some of the most profoundly vile music even made. In the two decades since Bruce and Utsier formed the group, they've charned out more than a dozen albums' worth of gleefully misogyn: st cartoonishly vio ent songs. In ICP's world rednecks are carved up and ealen ("Chicken Humin"), pedophries are stabbed in the colon ("To Catch a Predator"), and STDs get their own anthems "Bugz on My Nugz," which is performed, in part, in the imagined style of high-patched venereal crabs. "Our shat is definitely male-oriented," Bruce says.

The ICP aesthetic is a below-brow mix of Tales from the Crypt comics gore and puerile shock-jockery. It's most proudly displayed during the group's releact, in which Bruce and Utsier—both of whom hall from the suburbs—disguise themse ves with black and white clown makeup and throw gangstal eans while dousing their audiences with sticky geysers of Faygo, a midwestern econo-buy soda. Not surprisingly, the mass industry has long treated ICP with the sort of wary contempt with which one would eye a Chinese battery.

andfill. Radio stations and MTV mostly refuse to play the band, while critics have declared ICP the worst act in music. *Biender* and dismissed the group as a modern-day ministrel act (*Spin*). And though ICP has been signed to major labels several times, each deal has collapsed.

For years, ICP operated on the fringes of the record business, seeiing just enough discs to get the med a's attention, however unfavorable. But by the early '00s, with Eminem and Saw-style torture-poin movies making millions, ICP's face-painted crudity no longer seemed outré. For a good decade or so, most of the mainstream world basically stopped paying attention to Insane Clown Posse, and the group went underground.

That is, until last spring, when the men behind .CP did something so strange, so offensive, the rest of the world couldn't help but take notice. They got deep.

In April, the group released a music video for a piano-plinking, synth-heavy song called "Miracles." In the ci.p. Bruce and Litsler, dressed arm white, cavort in front of a series of epic. If poorly done greenscreen backdrops—the pyramids, outer space, a giant telescope. Lyrically, there's not a single chopped-up history or chatty STD to be found; instead, the group praises the mysteries of earth, from the sun to Niagara Falls to giraffes. The song's best-known lines appear, just shy of the two-minute mark. Water, fire, air, and dirt. Fuckin' magnets—how do they work? The clip was an immediate web sensation, mocked on Videogum and Gawker, jampooned in The New York Times, and eventually spoofed on Saturday Night Live. Though Bruce and Utsler, had conceived "Miracles" as an

earnest and fairly straightforward ode to the natural world long commentators and YouTube pundits were unsure of the song a meaning: Did these gays really not know how magnetism works'

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Answer They do. Why do they view rivers and giraffes with such fibombing ascingtion? (Because giraffes are not.)

And most important is this according toke? Definitely not.)

The attention lavished on "Miracles" was larged negative but t was enough to proper ICP up from the underground and the Guo didnit come alone. Over the past decade. Brille and Utsler have quie in built a massive pop-culture sleeper cell of fans, who call themse westhe auggains isonamed for a 1992 ICP song. "The aggla"). While most of as happiny ignored ICP the paggalos embraced the band sour sider status belong a burns (see 2009's Bong! Paw Boom debut at number four on the Bisboard charts. Over the years, in fact, ICP has sold a respectable "million albums." And that a list the beginn ng. Jugga os also flock to ICP's long. roming in, he store which selfs everything from action figures to paby gear to an energy drunk. Spazmatic There are ICP movies. ridge shows and an applied music festival stash brand-enhancer the Gathering of the Juggalos. A recent Night me segment estimated that Psychopathic has revenue of \$10 million a year and while Bruce disputes the figure, he owns four homes in De Fort and has already saved up enough to pay the conege saits to his two kids ages 3 and 5.

The aproar over "Maracles" only acreased the deviation of RCP's fans. The group long ago developed a sort of symbiotic relationship with the outside world. The more Bruce and dissertare shanted to

the margins—whether by critics, labels, in Evelchy binggers the more their outcast fans love them. No wonder the group sens. It shirts decree ng itself THE MOST HATED BAND IN THE WORLD In the weeks after I meet with the pair, they intravel to promote Big Money Rustias, their 51.5 m thou comedy western DVD: coordinate with the folks at Guinness about setting a world record for battle reval wresting (both are hige wresting fans) and even take a meeting with VHI about a possible show "They wanna see what we're all about. Bruch says

While the record industry has haplessly searched for a new business model. Insane Clown Posse has built a verticate empire. Many of ICP's wisest moves were things that once looked like career killers hanging out with fans while snubbing industry types, starting a niche music festival in the middle of nowhere, and, in Bruce's case writing a lengthy, soul-baring memour filled with unpleasant details called Behind the Paint. Long before MySpace and Twitter allowed artists in communicate quasint inallery with the ritar base and it transparency" had become a marketing strategy ICP had already erased the barrier between performer and audience

In doing so. Bruce and Utsier discovered a formula for success in the Interset age that the larger music world is only now waking up to: Build close relationships with fans, develop ancillary profit



streams, keep production and promotion costs down, turn every concert and album into an event (even of that requires industrial soda sprayers) and, most of all, do everything yourself. Bruce and other words, have become two bor a fide 21st century miles in agrates.

Fuckin magnates. How did that work?

PSYCHOPATHIC RECORDS'

headquarters is located in an industrial suburban neighbor hood just off De rolts Nine Mile Road, surrounded by strip malls warehouses and a Montessor's school. The interior tooks like a late "70s pornise" deep blue wall-to-wall carpeting, chocolate brown decor, a min.

mum of natural light—and the hallways are covered with posters and cardboard cutouts featuring other ICP acts, each with its own backstory and aesthetic from serial-killer rap (Twiztid to gangstazomble rap (Blaze Ya Dead Homie to southern-gothic rap Boondox).

On the aftergoon I arrive, Bruce gives me a tour of the facili-

ties dressed in a red jersey, den mishorts, and a thick necklace featuring the Halchetman, he group's cleaver, wielding logo. Without the clown makeup, his facial scruff and sunken eyes are more pronounced.

.CP has had little contact with the corporate music world since it set up this nerve center. With the exception of physical distribution. everything adone in-house by a staff of about 30. full-time employees. There's the 6,200-squarefoot warehouse an internet radio station W FLCKOFF; a recording studin; and a setup. for video shoots and concert rehearsn's (al) of the resources are shared by the Psychopathic roster, which consists of more than a dozen art sts on two labels? A second warehouse. located just a short drive away manufactures. hats, beits, shirts, stickers, onesies, and a manner of other gear, though half the building will soon be turned over to a new wrestling school Bruce and Utsier are cofounding

Perhaps the biggest surprise in Psychopathic HQ is the number of gold and platinum albums hanging on the walls. Even in the era of Liegal downloads, ICP's fans still buy physical discs which are stocked around the warehouse. This is partly because the CD packages are anomed with swag, like 3 Diglasses and decoding devices. But it's also because ICP has made its albums must haves for fans by weaving everything from the yrics to the liner notes into a sprawling, with ready supernatural spicious led the back Carmival, It's like the Lost are verse, only with organisate and evilling lies.

A convoluted moral by tale that purports to document and punish) mank not's basest desires, the Dark Cartival forms the crux of ICP's comic book mythology. Its origins can be traced to an incident that before Bruce in the early '90s, a story he relates in Behind the Paint According to Bruce, who says sexperienced severa, otherworldly visions in his life a "dark shadow" appeared in the hail outside his room one night. After dropping a series of cards, the figure transported Bruce to a late-

TEVEN THOUGH WE'VE NEVER MET WE'ALL RELATE. WE'RE FAMILY

night carnival Inspired by the encounter, ICP announced it would release six "Joker's Card" albums, each one spotlighting a different carnival character

For newcomers, divining the specifics of the Dark Carnival plot can be tricky. The music rarely strays

5 T M

Lab reports are often beyond our comprehension. But they don't have to be. Better design and more context can clarify the results—and help us understand our options.

Giucqes: 125 ma/dt.

he blood boot k

when you think about a nemarkable bing. With the prick of a reedle the noted as coursing the gray ariver size be as the editor of ged and mans med thing sites on eaglist and acreaying the minute angle of the service of those surfaces knowledge about your current "rait" your risks for disease, and your pote "tial response in trea ment

Of online you yourself we conserved mark interest one rigany of this. The typical blood test report is an exercise problascal an additioned hat needs to be trans a ecity and echaic on or physician, and the is fivour somehow it mage to see a ropy of your results, in many "Sistates, it's legal for a laboratory to send test results. directly to a patient in a regilicatory polizibe, liat less shown allot this only dony direct results to any customer any where The blood may be yours but he information contains as no

But ab reported on't laye to be unlike lightle. With some chought and design in inded thinking itests can be as of runalive cipallel sas legare inphysicians. With a tile color oxial account we can make sense of heir mibers. And with a training unders and ag, pakents can become participants in their own health

On the next few pages, windon as given the lab report a makeover, we consulted with usa Schwartz and Steven Workship a physic additionable Darmon in Medical Schooling it to effor Health Poncy and Cirical Princing and experts in committaceting data logislents, to make sure tirengin information gets onto the forms bid the reclevan stuff stays off. And we topped three exceptional designers to re-magnite how this information can be presented in highlers have printed page per remonity distiller beseapond of conception of the argument that and hary people can't handle their health, and inspiration, we hope for the medical establishment,

It's your body it's your information. Now it's yours to ancerstand

HDL: 46 mg/dL, LDL: 165 mg/dL Triglycerides: 160 mg/dL Vitamin D: 22 ng/dL

2 0 1

The Basic Workup

ARCO INSCRIPTOR

BESULTS REDESIGN BY MUCCA DESIGN

MAKE IT

The ubiquity of color printers, small, and PDFs means there is no excuse not to use one of the most effective tools in information design. We adopt a familiar green-yellowind points to make it equal to identify what needs immediate attention.

MAKE IT CLEAR:

Doctors presumably know what high or ow numbers might thear But there s no reason not to augment the data with qualitative interpretations for all results above and below normal." Are your numbers a little low or a lot low? We explain

MAKE IT EASY:

bring various

eters are rongen
on the right of the
page separate
from the results.
forces the eye to
scan back and forth
as you evaluate the
numbers. We add
charts that depict
clearly and suc
cincilly where you to
along the spectrum

MAKE IT SIMPLE:

This printout is rust the list of tour dense bages. The original lists dozens at measurements potentially too many for even a doctor to comprehend. We summarize the more estated tests, toous on the most relevant numbers, and add an overview at the top of the page.

MAKE IT RELEVANTS

Information is useless without explanation and a call to action. So we augment this patient is results with the reservant health risks and offer guidance about what the patient might do to improve her health.

Your Test Results

Cora Peterson

Firmar A gus .

Tr F

RESULTS

Comprehensive Metabolic Panel

Glucosa Tashing) 25 mg/dL



Vitamin D

Total vitienin D. 92 ng/mL



Complete Blood Cell Count (CBC) Normalis at 20

calumit, including white blood car count to high count can indicate infection).

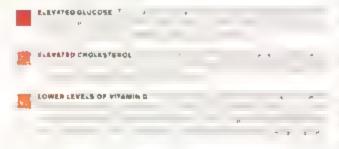
Urinelysis

Normal for all 20 values, including court appreciatios, and protein

Endocrinology Normal for TSM, which is an indicator of thyroid biriction, and for microstbather and crashrons impagates of endogs function.

Chemistry Normal for iron, bignetier in saturation, and femilis. (Abinomial levels could indicate animal, hepablis, or other problems,)

WHAT DO YOUR RESULTS MEAN?



Your results at a glance:

TOUR GLUCUSE CYELS ARE TOO HIGH, THE CH INDICATES PREDIATETES

TOUR WILDOWS EVE S OF OW

TOUR CHOISS'ESO: EYELS ARE
ADDITE: WE HIGH

FOUR COME SET SED TH BOD FUNCTION SAFE B. NORMS.

Ouestions?

Contact the physician with

Lipid Profile

Total cholesterol 211 mg/dL



HDL (faced chalesteral) 46 mg/dL



LOL (foot cholesterol) 165 mg/dt.



Trightendes 160 mg/dL

WHAT CAN YOU DO?

COMMUNITY FOR THE RESERVE A SOUTH MEASURE AND MEASURE

CONSIDER LIFESTYLE CHANGES TO CORRECT VITARIN D INSUFFICIENCY

The Heart Disease Test

A signs eith its constessis and bight sood pressurement and ngather reactive product or CR ast six rely asset to spot people at instead or heart disease the leading stake of deathin in no. 15.

RESULTS REDESION BY DAVID MCCANDLESS

OTHER

THE TEST:

The CRP lest was invented by Foul Ridker a Horvard medical professor to medical professor the blood. High levels indicate information, which can be a ligh or interface or cordinate authorized there is space galare on the page this

aport mokes no

CRP and actual

heart disease

ir k bietween.

effort to explain the

GIVE THE CONTEXT:

A doctor typically orders a CRP lest based on the results of a ligid games (which shows chotestaroutevals; then often arders the lipids again along with the CRP lest. The two measures are used pantly to suss out a diagnosis or assess rink. So why not put them together on freque la teache ena Wedo

PERSONALIZE THE RISK:

The phrose relative condrovescular risk has little meaning without some context. An entitle collection can combine the patient's CRP result and lipid profile to exemple their specific risk. And we give them the URL to let them use it themesives.

POINT TO THE NEXT STEPS:

The results are in. Now what? The original report buries advice on relesting in the line print. We emphasize the point, explaining how a change in behavior (like eating better or quitting smoking) can reduce a patient's risk of heart disease

Blood Work Cardiology Result

F %

Patient

NAME: Jerome Morrow

GENDER M AGE 49 DDB 01/10/1961

ORDERED BY: Or Francis Pulask

Bacta Medical Centre

pulasia Läther tamett edu. (603) 555 9564 x1523

COLLECTED: 11/02/2010 10/40 am

RECEIVED: \$5:07 2010, 1 03 0 in

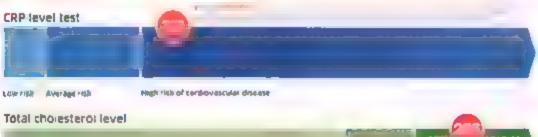


About this test

This report evaluates your potential risk of heart disease, heart attack, and stroke



Your results



LDL ("bad" cholesterol)

Djelenić

HDL ("good" cholesterol) n, gryla



Mos derhird



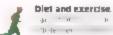
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11 -- 111 H. H. H. H. H. H. Your risk would be lowered to: n · b 10% 6%

www.reynoldsriskscore.org

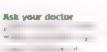


What now?











Consider retesting and the part was

9-1-1-1 v (Fr) (I)

The Prostate Test

Short for prission over 40 even house

F 911

ne phost common workups for the to the carrier is controvers a

RESULTS REDECION BY JUNG + WENIG

KEEP IT IN PERSPECTIVE:

Even if he has a high PSA level, our patient's chance of prostate concer is just 25 percent. And even if he has the disease, them's a 75 percent chance he'll live 15 or more years—and a near certainty he'll be alive in live years.

UNDERSTAND THE LIMITATIONS:

As the original report states, "PSA invols, regardless of value should not be interpreted to absolute avidence of the presence or absence of disease Even Richard Ablin. the doctor who discovered PSA in 1970, says the test is "hardly more effective than a coin toss."] That's why our revision includes helpful statistics (for example, 65 to 75 percent of men. with a high reading do not have prostate concer-We also list some of the many alternafive reasons for an elevated PSA level

GIVE SPECIFICS:

Since the prostate produces more PSA as a man ages. some researchers argue that reference numbers should vary by age to avoid unnecessary biopsies So while the original report shows ustone range (0.0 to 4 0), we tollor the risk lo our potient a age group (50 to 59) Any lab could do the same

KNOW THE CONTROVERSY:

Ablin called the overuse of the PSA test a "profe-driven public health disaster" in a recent New York Times oped. He says PSA screenings often lead to unwarranted, dangerous, and expensive biopsies. That wan "stop the test from being used-byt patients should know that the results are often ambiguous.

USE THE WHITE SPACE:

The anginal printarilleoves most of the page blank. We put this follow ground to use, adding more information and context.

Lab Test Result: PSA

WIRED DIAGNOSTICS

PATIENT MAME	BIRTH DATE	DAD NEW TO	COLLECTED	
Grant Boyd	1956	9131-10-1	RECEIVED	
			ORDERED 8Y	

1 ---

About the PSA test

This test intercent of the strict of the second of the sec

2 · -

What do your results mean?

The higher your PSA level, the greater the chance you have provide career, those were the post-dw-to have care entering the Area with the ulso the post-dw-trianglish with the wind.

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OB 60 - 92 66	90 45 66 67 66 60	100 -111 -102	10-14-15-16-17-16-16-1
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Additional perspective

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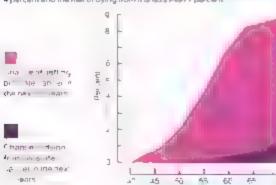
If the was value first PSA so regarding Talk they was about affect for about affect for the elsewherd PSA and one of the other property affects affected as a person unformation.

In the general population. The relic of prostate carbon at your age is stood. 4 percent and the risk of dying from it is less than 1 percent.

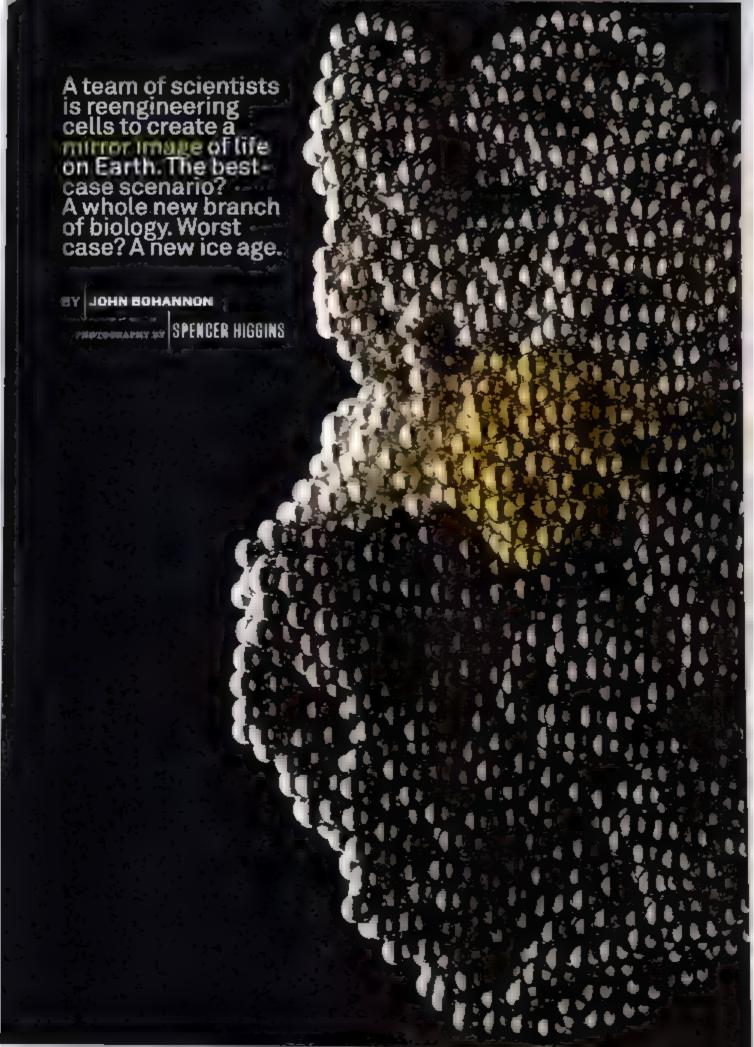
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BUILDING A PARALLEL UNIVERSE

BUILDING A PARALLEL UNIVERSE

Dimitar Sasselov was at the end of a long day of having his mind blown when the really big idea hit him. Sasse by an astrophysic stand head of the Origins of Life Initiative a Harvard, was sitting in the front row of a packed fecture hail at the up versity last spring, insteading to the famous human genome sequencer. J. Craig Venter talk about his efforts to synthesize new forms of life. Sasse by had introduced the baid, per petually sunburned brotech entrepreneur ar another fecture that morning, and he'd spent the day squiring Venter around campus.

Bu, Sasselly's thoughts were light years away Two months ear her a Delta II rocket had blasted off into the darkness above Cape Canavera, carrying the Kepler space telescope. Sasselov is on the tear: using kepler to hum for Earth, ike planets around the Cygnus constellation. Hooking, utimately, for extraterrestrial life. And

he was frustrated. Because no marter how much data he and his convergues confect gases in the a, mosphere, a fingerprint of color on the surfacethey never actually see aliens themseives. And that makes a impossible to answer one of the most basic questions of astropiology. How diverse is ife in the in verse? If there is ite somewhere other than here, does it look like earthly fe with DNA and prote no Or could it run on something else" Venter's lecture about artisanal bacteria reapped sudgently onto Sasselov a frustration Why not lest do what Venter was doing? If Sas selev wanted o smily avens, why not ust make them amself or a least the next best thing? He imagined himsel looking at synthetic aliens on a lab beach "guzing at the other" as he puts it, "similar to as but not the same. He ancapped his red periand scribbled a note "Agrange a migchot w Jack & GMC," it read, "Charal El coll w GMC and put it into a vesicle willack & subject two cut tures to planetary environments."

Translation to to the synthetic biologists lack Stors all and George Church. Ask them to create a felform that runs on an operating system different from our own, based on mirror image versions of earth, y proteins and DNA. Let these alien cells grow and mutate and see how they survive. If it worked, those new cells. Church called them "mirror in fe" could answer one of the deepest questions about the origin of life not just here on Earth but everywhere in the universe. They might also open up new avenues of discovery in materials.

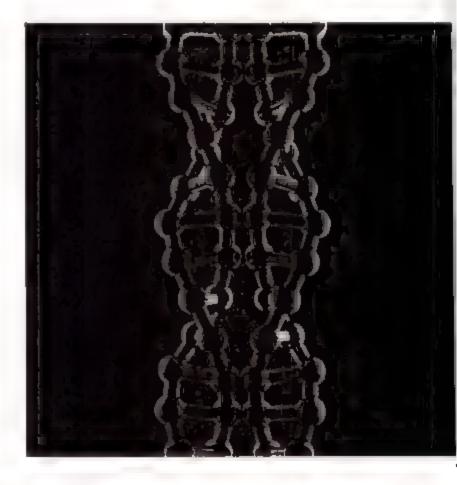
science fuel synthesis and pharmaceutica research. On the down side though mirror life wouldn't have any predators or diseases to itmit its reproduction. They would have to keep an eye on that.

It was the end of the aptly named Hadean eon: Volcanoes spewed lava across rock baked by ultraviolet radiation: asteroids blasted craters into the landscape. But the worst of the bombardment prinding the colossal impact that knocked toose the chunk that became our moon—was over. There were oceans of water and plenty of complex organic chemicals. So in some wet place

thaybe near an undersea hydrotherma, vent maybe to the day on the shore of a shallow pond, organic molecules started to repicate. No one knows exactly where or when or how, but life began.

It was nothing tancy at first. But soon those replicating motecules clothed themselves in a skin or fat, a membrane to keep their complex chemistry from diluting away. And with surprising speed, those bubbles of goop gave rise to a living, functioning cell, the East Universal Common Ancestor of everything alive reday.—LUCA, Using the genetic differences between today is bring things as a molecular clock, we can calculate when that ancestral cell first emerged about 3.5 b. Iton years ago.

Since then, life has been his y. At last council there were as many as 100 million species on the planet, and billions more have gone extinct. And yet, at the most basic level of biochem's ity, it has just



been more of the same. Every organism runs on the same operating system that LUCA invented. Peet back a cen's membrane and you in find a blur of activity thousands of chemical reactions taking place all at once. The conductors of this biochemical ballet are the proteins mano size building blocks and machines that control the speed and timing of every reaction. From breaking down sugars to cleaning waste to repairing the membrane, the unique shape of each protein determines its job, as specifically as a tock to its key.

The LUCA operating system was an ingenious solution to keeping track of all those thousands of proteins. Biochemists call if the central dogma: Genetic material, in the form of a long nucleic acid

polymericalled DNA, stores and gillar record of every protein sidesign. Another nucleic acid. RNA, carries the information to a molecular machine called a ribosome, which reads the RNA and strings together animologists to form the protein. Once the string is complete, the protein snaps, itself—to the inguit shape and gets to work.

But there is at least one viable alternative to LUCA, the "importinge of the entire system. Brochemistry is the story of snapes, and this is its strange plot, what Lots of noiccules come "importing pie conformations stricking agother the same along can sometimes yield different three-dimensional structures that are the mirror images of each other, a property cared charabity. Indeed, most of the basic molecules of the from the nucleurands attengencies when the amino acids of the proteins have mirror mage versions. And all centary more representative cared sometases which is certain molecules in the representative representation of the proteins.

membrane science, and synthetic biology, an amortious researcher could go beyond theory and build it from the ground up. The tools are here well, almost here) to make mirror life from scratch

Sasseroy is the a mate talent scout for a problem, ke this Because of his job at the Origins of Life initiative, he knew George Church was already trying to build mirror flipped molecular machines that could translate genes in opino eins, and he knew that Church did it have a tything to put the mil. The membranes of earthly cells are built of fat and protein molecules with the wrong chirality. But Sasse, over also knew that if there was anyone in the world who could create a membrane that would work, it was lock Sassery. They're both proneers, but in different ways." Sassery says "They are my favor to people, and my mentors."

So to bring. Them both in a color Combining and made his pitch. But did fully functioning mirror coil made of morecules they themselves would syn thesize. On the but hand for way Dunitures one work pranches on the tree of the last venter was doing with his tweaks of existing color, instead create an entirely lew test.

Charch were for a mined ately file dibeen opking at a miliar ideas for years. But Szos ak tiden, thank it would work "in not say in it a impossible." he says, sitting in his office at Mas sachusetts General Hospital a year after that first meeting. "I'm just saying it requires a jot of hard steps." Nevertheless, he agreed to support the protect.

A soft spoken 58 year add and, now a toy ish gone works. Szoist, k we're to Nobe, Prize last year for his work in tolomeres, the project vecacer as of almontose ries. He ags orgoned he art. Bena yous, chromosome or on to revances at DNA closing into gene hopping, La ety. Szoktak ras began working on he and profit tos, membin tes in somer twicames, enclose and tretect LUCA and everyice, since, inside list 1 hos. - 's it floo is rescept he wisoheres of fat primitive hemorane hibbles. Given the right meterial agree ents, her spontaneously selfassemble grow and divide by they're mach sin pler than a op are ly occurring cell mamarane. The fat years have on third by the nourror. mage is he some molecule. So I hev were meeted with say, the guts of marror i fe, there would be no wrong-handedness to get in the way.

And that is where (harch comes in, He s 6' 5) with a gnarty beard and a science fiction fan's optimism. It's his job to build he gene me and protein infrastructure for marror life. Build could improve us active by survive on Earth? "Everything a know from them sary and physics says that this should work." he says, Then he gets a little silly "Rey I know a great shortcut to get our mirror ribosome fjust need a four-dimensional being to pick me up, rotateme in 4-D, and put me back as my mirror self."

Szos ak still says he'd bet against their success. The cautious scientist or non-car use how the mirror cell, or cell. I of charally hippen it declar machinery will come to tife. Porgel about all



sions. But for some reason, in the mach, iery of iving things on karth, one side of the nurror goes at nost wholly unused. All of us earth, rigs, from a gae to elephants have proteins made of left thanded among acids and a genome of right handed nucle caclds. When receives say handed they're generally referring to the direction that polarized light skews when beamed abough a pure solution of the molecule. No one knows why LUCA picked one side of the matter and not the other.

Theoretically, a cell could be based in wring-handed molecules. Its brochemistry would work just like ours. DNA to RNA to proteins but it would be completely incompatible with earthly life. Its chiral twin. And now thanks to recent advances liganum as, cell



the technical issues of making mirror ribosomes, mirror peptides and mirror DNA," he says. "The complexity of reconstituting a normal rell, or even a simplified cell with 1,000 components, is mind-bogging. You don't just mix these things up and get it to work." Still, he agreed that if Church got his part figured out, they could use his membranes to keep everything in Szostak hopes that even attempting to make mirror life could lead to a better understanding of how ribosomes work and cells evolved. He doesn't mention the possibility that mirror life could learn someone serious money.

THE WEXE THAT Sasse ov met with Szostak and Church to discuss moror life a catastrophe was under way across the Charles River at Genzyme, one of the largest biotech companies in the world. Two of its top sellers—medicines for treating the rare genetic disorders Gaucher's disease and Fabry disease—are proteins. In people with these maradies, fats accumulate in the blood, organs, and brain, causing symptoms from burning pain to kidney failure unless they get the drugs, produced by genetically modified cells suspended in grant notinent pools called bioreactors. But that week, a virus that disrupts cell reproduction infected one of the bioreactors. The entire plant had to be shut down.

It was a bard sammer for Genzyme, as well as for the people who rely on its medications. While the company decontaminated its bioreactors, thousands of patients around the world rationed their drug supplies. Genzyme's stock price dropped 20 percent.

When Church talks about mirror life's quarky advantages, unvulnerability to this kind of mishap is high on his list. "Viruses can't touch a mirror cell," he says. No virus has evolved to infect it. And even if a normal virus did figure out how to get past the membrane of a mirror cell—which istually requires a mechanism that would be thwarted by wrong-handed molecules—the mirror genome would be unreadable to the attacker. Viruses work by hijacking their victims, genomes, taking over the cellular machinery for making proteins to build more of themselves, a normal virus wouldn't have any effect on a mirror cell's factory. This makes mirror life a potential workhorse for biotech.

As it happens, the cell that Sasseiov ultimately wants to create a chiral twin of E coli—couldn't make proteins like Genzyme's cells. It would make the chirally flipped versions, which would a most certainly be useless.

But that's not the sort of mirror cell Church has in mind. The problem, he says, is that billions of years of evolutionary R&D have made roday's bacterial cells tough, adaptable, and very good at making more of them selves—but melficient at spitting out designed to-order morecules in a bioreactor Church wants a "minimal mirror ced" oper vinces perfor proteins mirror normal, and even mores of the two but far more efficient than a bioreactor full of trucky, genetically engaged cells.

The problem for now is that Church's entire lab is tuned to the wrong chiral setting. Every step on the path to making a mirror cell is blocked by the absence of the right protein tool. The molecule that makes DNA, called DNA polymerase, isn't the right shape to string together wrong-handed nucleic acids. Want to transfare these mirror genes into enzymes? The protein machine that makes RNA copies of DNA—it's called RNA polymerase—can't latch onto mirror DNA—And normal ribosomes can't read mirror RNA or string together mirror amino acids.

That's why Church has been harking the mbosome, the master tool that makes all the rest. His plan is to make one that reads regu-

lar RNA transcripts of genes but can string together wrong-handed ammo acids to form mirror proteins. "It would be a bridge between our world and the mirror world," Church says. With it, he'd be able to pick a known gene from a library and build mirror protein tools. Chief among them will be a full-on mirror ribosome—no easy task since the ribosome is a mountain of a molecule, protein and RNA, dating from a time before LUCA. But with a set of mirror proteins, Church thinks he could build one.

None of this will be easy. Messing with the vibosomes aside a living cell can kill it, so Church is going to make vibosomes self-assemble and function in a test tube. And then he'll have to find mutant versions that will accept wrong handed amino acids. Think of it as switching the sockets on a wrench from standard to metric

Church and his team have cracked the first step. Though they haven't published their results yet, last year his team got a synthetic ribosome to self-assemble and produce luciferase, the protein that makes fireflies glow. And he has a library of mutant ribosomes that have the right kind of sockets—they'll accept mirror amino acids.

This is where the money comes in Some of the most valuable drugs are actually they proteins that include wrong handed animo acids—also the immunosuppressant evelosporate. To manufacture it pharmaceutical companies have rotely in an inefficient and expensive fungus. A hacked ribusome modified to handle both nor mailiand microrianian ands could crapk out the stuff on an industrial scale. And why stop at what we already know? Being able to produce inmatural proteins cheaply means you could synthesize billions of them and then test them in parasiel for antifumor and antibiotic properties. Once you got a but Szostak says, you could generate trimons of variations on that minecule. "figure out which are the good ones, and evolve them."

Church thinks even bigget. A manufacturing ribosome would be great but a fully domesticated in more computated stuff—would change everything. "An production was be biological." he says. In that science fiction future vacs of virus proof mirror cells could pump out biofue. Tay down nanosize organic circuitry, and even extrude organic cement foundations for skyscrapers.

OF COURSE, mirror life could also kill us a. J. Synthetic biologists like Church have been thinking about doomsday scenarios for years—the idea that some synthetic super-pathogen will jump a fence. "But that's the beauty of mirror life," Church says. "It can't infect us." Just as viruses from our side of the mirror can't infect it mirror pathogens can't infect us.

They might be poisonous, though. "I am reluctant to say that the mirror cells or their contents would be nontour." says Jerry Kasting, a researcher at the University of Carcinnati who studies the way chemicals interact with human physiology. "But nor would I expect them to be highly toxic." It took evolution millions of years to come up with snake venom proteins that shut down mammal organs. The same goes for nucrobes that produce toxins like anthrax and botilism. Mirror molecules aren't tuned to our brochemistry. That's why the 1960s controversy over the antinausea drug thalidomide was such a surprise—the right-handed version caimed morning sickness in pregnant women, but the left-handed version caused birth defects. Usually, though, the mirror image of biological molecules are weaker or have no effect. They can't shake hands with our pro-

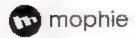




Technically a battery. Technically a case.

mophle Juice pack ar' made for iPhone 4

The juice pack a rim offers you the convenience of a fully protective hard-she case with virtually twice the battery if e of the iPhone alone, all in an ultra-thin ght-weight, low-profile design.







tems. And that would be one of the safety features of mirror life. To a mirror cell, Earth's environment is mostly the equivalent of Olestra, the synthetic fat that human enzymes can't break down. There's just not enough nutrition for them in the wild.

On the other hand of mirror cells somehow evolved—or were engineered—to consume normal fats, sugars, and protesns, we might have a problem. If a mirror cell got the right set of isomerages to break down these nutrients, that would be a mess. Mirror cells would slowly convert edible matter into more of themselves. Anything that are them wouldn't be able to digest the mirrored molecules—they'd pass right through predators' guts. And as the mirror cens excreted waste and died, the accumulating material would be like a self-generating oil spill with nothing to clean it up.

It gets worse: If murror cells acquired the ability to photosynthesize. we'd be acrewed. "I suspect that all hell would break loose," says Jim. kasting, a climate scientist at Penn State University and an expert on it, global carbon cycle. (He is also Jerry Kasting's chiral twin prother Jim is right handed, Jerry is left) All it would take would pela arripte of marror evanobacteria squarted into the ocean is yano. pacters, are at incoase of the ocean's food pyramid i onverting sunacht and arbur do xide ato more of themselves. After doing some rangh cap a attension the effects of a metror cyanobacterial rivision. If it kastong is it sore who is would full as first in the global tamine or the coage it which quickly consume all the available natherts. he says. This would cave fewer in perhaps no nutrients for not me ranges us. That would wipe at the global oceanies dogs and scarve a sign fill a portion of he human population. As the time the icean was a upon ec at seduble screen as they would "draw down" CO, from the atmosphere kaseing says for a decade. or two, you would have a cure for global watern up. But kind up predicts that in about 300 years the bugs would suck down out of Earth's atmospheric CO. Photosynthesis of most land plants would find. All agricultural crops other than corn and sugar cane would die he says They do photosynthesis a little differently. People might be able to subsist for a few hundred years, but things would be getting pretty grim much more quickly than that." After 600 years, we'd be in the undst of a globalice age. It would be a total evolutionary reboot. both Kasting and Church think mirror predators would evolve, but whatever life existed on Earth by that point wouldn't include us.

"I would be the first to say that we shouldn't make a photosynthet conjerce ceil." Church says. "But I'm reluctant to have a moratorium on something that doesn't exist yet." He says he'd build safeguards into his mirror ceils so they'd perish without constant care. And the advances in synthetic biology required to transform those first delicate mirror cells into anything that could survive in the wild are even more remote.

MARLY EARTH SERVICE to have been covered in a soup of organic molecules with no chiral preference. One plausible theory for where they came from space. In 1969, a meteorite fell on Murchison, Australia. The 4.6 biason-year-old rock is a sample of the solar system from before the birth of our planet. Not only does it carry both right- and left-handed versions of normal amino acids; it also contains dozens of exotic amino acids that life ended up not using at all. This material was plummering the surface of Earth right through the Hadean era. But that doesn't explain why LUCA chose our side of the mirror. It could be that the primordial soup wasn't equally spiced with

both versions of the molecules. Stars sometimes emit polarized light that selectively breaks apart one version or the other of a chiral molecule. In fact, the Murchison meteorite contains a slight imbalance between the right, and left handed amino acids, with an excess of the kind that got used by LUCA. (Scientists are convinced that it isn't due to earthly contamination.) So it's possible that the sun destroyed the wrong handed amino acids, denying mirror life its construction materials before it could get a toehold on this planet.

Or the game may be rigged. There might be something more fundamental about our universe that prefers our side of the mirror But if so—a possibility that thrills Sasselov—the physics behind it is unknown. His new cells will provide the test bed for that hypothe sis. "We'll use the mirror cells as the basis of the assay," he says "We can use them as an amplifier." He'll grow coinnies of norma cells and mirror cells under the same conditions if the mirror cells aren't exactly as healthy or fertile as the normal ones, he'l know something weird is going on. Even the timest bias in physics will show up as a big difference after thousands of generations.

Sasselev has another, even stranger experiment planned. If it works, it will ruin Church's hopes for virus-free biotechnology but might earn all three researchers the Nobel Prize. "It'll be a revolution in our understanding of life and its place in the cosmos." Sasselov says. The short version. He's going to try to find mirror life that's already living on Earth.

In the traditional story of the origin of life, the chances of evolution producing a living cell are vanishingly small. LUCA was a lottery winner But (t could just as well be that life is easy—something that just happens in environments like those of early Barth. In this version of the story, the primordial soup was a party. There were plenty of resources, few rules, and all manner of bixarre cellular characters. LUCA was there—and so was LUCA's mirror twin. And maybe even stranger versions of life, too.

We know how the party ended. LUCA went on to become the dominant colonizer of the planet, evolving into bulions of species great and small, including a midsize naked ape that likes to read magazines. But what if some of those other partygoers stuck around? Strange life forms might be irving undetected because we've never thought to now for their chemical traces. They might live in extreme piaces, at the borrow of the ocean or inside the pores of rocks --a "shadow biosphere" hat's been here all along, eking out a quiet living. Just as Sasselov wormes that astronomers have defined the signs of life too narrowly marks we don't know what the portion right here at home.

His poir de arms de eust Sasse et knows int. hing farsare They must have their own vituses the says. That is ust afact of the "And that is how he introp the shadow biosphere, "We can use murror received the says. Earthly murror viruses might mustake synthetic mirror ceils for their asia, proy, come out of huding to infect them, and their shap the drives the hid of the petro dish. Rather, hap going hunting for morror, for Sasse in wood diesand in mothering.

Kepler has already spotted fundreds of Earth like planets. Sasselov estimates that there are 100 m from ha stable worlds in our garaxy. Odds are we'll never visit them. For it Sasse ovis right then the "alters" could be here already, and they might be older than LUCA. If so, murror tife isn't just here. It's us.

лони вонанном (genzo@aaas.org) wrote about a proteinfolding game in ussue 17 05

AT A COCKTAIL PARTY.

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Return to Cyberspace

screenwriters, animators, and programmers. They're the ones who reintroduced Tron to popular culture. It is no accident that when Matt Stone and Trey Parker the master saticists behind South Park, wanted to parody the idea of being "sucked into Facebook," the episode became an extended Tron riff Or that when 30 Rock's Liz Lemon found her dress glowing under a blacklight at a cast party, she joked that she was going to go fight Sark like in Tron. "Lowe a real debt to the Gen Kers." Lisberger says. "That's who embrared Tron and took it to heart."

Bean Balley, now head of production at

Disney studios, was 12 years old when his father took him to see Thon Sure enough the mages instantly embedded into his subconstituts. those illuminated costumes and cost aser lines didn't look like any other movie. Bailey grew up to become a flummaker himself, eventually work and with Matt Damon and Ben Affleck In 2005, he was tasked by Disney to reboot 77on "The first big meeting I had at the studio. I said. Here are three things I think we have to have to make this movie The screen has to look unlike anythms: you've ever seen before. We need Jeff Bridges, And we need light cycles."

Making a new *Tron* may have been less risky than trying something brand-new, but farimarity doesn't write scripts. All Baley had really, was a resonant title and a few images. "People task a lot about built in brand equity and those kinds of things, but I think with *Tron* it's a little different "he says. "It was a really forward thinking movie that for a variety of ceasons kind of missed the mark commercially."

Bailey teamed up with Adam Horowitz and Edward Kitsis, coexecutive producers on Lost The dup was key in the dispensing of Faster eggs throughout the series, sneaking in winking references for the show's disciples—a useful talent if you're trying to connect a new movie to an old one. And they loved Fron. On their first gig, a TV show called Popular (made by the creator of Glee), they'd written an entire Tron-themed episode. When they signed on to write the film. Rinsis recalls, "the first thing we thought of was that we didn't want a remake, because Tron was awesome."

What they came up noth was a sequel, a father son story—Kevin Flyon, Jeff Bridges character from the first movie, has disappeared into the Troniverse, and his son, Sam, has to go in to find him. Meanwhile a younger, eviler version of Flyon, named Clu, has taken over the game grid. It worked for Bailey, but none of them knew if it would be technically executable.

That's where Joseph Kosinski came in.
Trained as an architect and aerospace organeer he had come to Hollywood's attention for a series of TV commercials that were slickly digital but didn't look it. During one of their early meetings, Builey asked kosinski. In the post. Matrix era, how do you make a sequel to Trou?" Kosinski proposed keep.

And if Lisberger and Bridges didn't buy in, poof, there goes their first movie. So they pitched: There's an old you and a young you in the *Tron* world, and the young you is the bad guy, and you have a son, and

Bridges all of a sudden stood up, excited, "Hang on," he said and disappeared into another room. He came back carrying the helmet be wore in the original. "Let's take a walk." be said. At which point he made everyone stroll around the property, taking pictures of one another wearing the helinet. ("One of the great meetings," Bailey says.) Bridges and Lisberger were in

Now the team could do what it had promised from the beginning rexactly what List berger had done 25 years before in the same situation. Kosinki would shoot a test clip to show the style and approach of the film he'd like to make, an increasingly common strategy for first time directors. And then Bailey and the team came up with a plan instead of just shooting a test, they decided that they dimake something good enough to show outside the studio. But ey got Disney in pohy up development coin and Bridges agreed to appear.

They fireshed the test reel in March

"The screen has to look unlike anything you ve ever seen before. We need Jeff Bridges. And we need light cycles."

ing the characters and building a mythology that connected 2010 to 1982. It was a ballsy approach that meshed with what the writers were already worlong on. Kosinksi was fured.

So that left just one last tricky bit convincing Lisberger and Bridges. Lisberger had been kicking around Disney for decades, trying to get a remake or sequel made. But his ideas had become increasingly distant from the source material. And Bridges? He was on his way to winning an Oscar for Criay Heart. Tron was a B movie from before he was famous. So in 2007, Bailey set up a meeting with Bridges. Lisberger, and the whole crew: coproducer Justin Springer. Kosinski, Kitsis, and Horowitz all twoped to Bridges bouse in Montecito, Call forma Kitsis and Horowitz were thrilled—they were about to meet two of their heroes.

2008, early enough to suggest showing it at Conse-Contin San Diego. "This place was not entirely comfortable with the idea," Bottey says. "A little bit because the movie wasn't green-lit yet, but more like, why are we going down and showing something when we don't know how it will play?" Builey and Kostnski were pretty sure it'd play to the hearts of the Conse-Conterowd (and if it didn't, they weren't making the right movie). "From a more Machiavellian perspective." But ey says, "I was thinking, well. If they show it and it plays, there's not going to be a lot of turning back."

It played. Oh, it played—and it deployed every tool Bailey said the movie would need. The production design was original but clearly looked like the first *Tran.* Bridges' appearance produced paroxysms of cheers







Available at amazon.com

from the 6,500 nerds in Hai. H. Light cycles banged into each other. Disney gave the movie a green light

Kosinski finished shooting Tron: Legacy in June 2009 and quickly began post production. Since then, Disney has released two traners and leaked dozens of images. It has run alternate-reality games that started as websites based on characters and compances from the movie and then exploded. spewing into mock-ups of the film's sets at Conic-Con or played-as-real press conferences where actors from the original Tron perform as their characters. Fragments of imagery and sounds from the movie have been processed and recapituated at fashion shows and live concerts. Even in the throes of postproduction, the actual movie byed inside computers ... but it was trying to get out

The screening roum at Digital Domain is a sittle tattered—concrete floor, rarty recklish rug, four rows of threadbare stadium seats. But the screen is big, the sound is good, and the projector is equipped for 3-D. Mounted in the middle of the front row is a console with a small button in the center "Any", me we re in here and I see a shot I like.

I hit this button," Kosinski says. He presses it and a bell rings as if it were recess. A sign over the upper left corner of the screen blanks on and off FINAL. At one side of the room, Eric Barba, the visual effects supervisor laughs ruefully. Three months before release, he has a wall of index cards representing animished shots. Maybe he'd like to see that signinght up a little more often at this late date.

Rosmsk, has about 25 minutes of film that he's willing to show, some of it finished and some of it still wireframe. A sleek, sexy Jeff Bridges- young, with pourly 80s hair and chiseled abs, who could plausibly have sex amid Mayan ruins, like in Appliest All Oddssprays menace all over the place Modernday Jeff Bridges, the weathered, huskier 2010 steration, could probably do a range of menace in a single take. from a light dusting to let's just open-the-spigot, it requires considerably more effort to get the rejuvenated version to do the same bit of business. The body in the tight black jumpsust with orange piping is real, but the head is entirely digital a near duplicate of the 1980s-era Bridges that the admators call Rev 4. It has

taken hundreds of digital artists two years to create this simulactum. They spend days in darkened zooms, row after row of cubicles decorated with stills of Bridges. Like a creepy teenage girl's bedroom, tweaking the corner of his mouth and the reflections of light to his eyes—and this is a movie with a lot of reflecting lights. In the completed scenes, Rev 4 is nearly indistinguishable from real even close up—you can tell it's CG only because you know it's CG.

Whatever else happens, the movie is really pretty. The light cycle battle, an 8-bit maze of luminous color blocks and right angles in the first movie, has been turned to crystal motocross by way of Harry Winston. Now live yellow cycles race against five blue, curving and arring across three levels of transparent ramps, roads, and spirals and leaving acy glowing walls behind. When characters are killed, they shatter into thousands of glittering cubes.

So Tron: Legacy doesn't look like Tron. Nobody would really want it to frankly, and anyway: technology has moved on. What counted as cinema-quality for Lisberger back in the 19°0s looks like what Kosinski's team sketches with today. "Our pre-viz looks like

wore to translate his facial movements to Rev 4 included a visor that looked uncarnily like the helmet he wore in the original. And the prospect of an unimpeachable, photocealistic avatar for Bridges ought to make the Screen Actors Guild freak out. In fact, a flashback sequence featuring flaw ess, CG youth-enized versions of both Bridges and Bruce Boxleitner as the eponymous hero sparks a burst of laughter from Kosinski "Oh! I know what my next project is going to be " he says. "A 1980s buddy cop movie with young Jeff Bridges and young Bruce Boxleitner!"

What really connects the old Tron to the new is a certain grandiosity, a feeling that big thoughts are being think aimd all the shiny lights. The narrative binks are fun—the discombat arena in the new movie infolds with a sound from the old Discs of Tron areade game. Sam Flynn's first words upon entering the Troniverse in Legacy echo Kevin Flynn's line from the same moment in the original. It's the themes, though, that make a movie like this into something more than popcorn. Lisberger still thinks that cyberspace is a mirror of the human soul; Kay says its a window to other worlds. Tron: Legacy should

The body in the black jumpsuit is real, but the nead is entirely digital—a near duplicate of the 1980s-era Bridges.

the original film," Kosinski says. "I wanted this to feel like we took cameras into the world of *Tron* and shot from the inside." This echoes what Peter Jackson once said about Middle-earth. But nobody had ever been to the Shire to say whether the vision was accurate. Today people think they've been to ryberspace. Whether it's Facebook or Azeroth or the virtual Afghanistan of *Modern Warfare 2*, everyone has already aved aside the Troniverse.

All those artists at Digital Domain know they're creating. From's reality by creating it in reality. "We've achieved what the first film predicted," Kosinski says. Jeff Bridges had to get a full-body laser scan during preproduction, an eerie hearkening to his digitization in the first movie. When he shot his scenes as Clu, the motion-capture rig he

make us do more than look at a beautiful new Bridges and think, my God, what have we done? And the filmmakers are, to their credit giving it a shot "After a lot of deep, late-right pizza- and beer conversations, we thought there was a pretty interesting notion in that not being a one-way street," Bailey says. "That world is coming into ours, too." An interesting notion, if they can pullitoff. Because even the cheesiest science fiction, like cyberspace, should be both window and mirror. It shows as where we're going and who we are.

Or, failing that, it should give us light cycles.

Description: The cycles of the

Senior editor ADAM ROGERS (adam_rogers (@wired.com) wrote about the Watchinen movie in issue 17.03.

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The Coupon Rebellion

floor "Please slow me down if there's anything you don't understand. You'll see that I'm putting my coupons in two stacks—one for those that double, one for those that don!"

Next comes a bag of cherry tomatoes and three lars of Peter Pan creamy peanut butter free with a doubled coupon—called a blinkle because it was dispensed from one of the blinking coupon boxes installed in grocery store aisles. This particular coupon came

"Gustomer service to 6." Jennifer announces, leaning into her microphone.

"If you save over a certain amount, they need to get an override," Harrison says. She twists her beaded bracelet as the grocenes scan, her face taut with the bridged anticipation of a card counter cashing in chips.

"The total is \$1.77" Je unifor says. "You saved \$78.15." Harrison pays, scrutinizes the receipt, and then picks up her bags and walks over to the customer service counter. The red beli pepper, priced at \$1.99, has erroneously rung up at \$2.79 plus tax. Harrison explains this error to Michael W., who, per Harris Teeter policy, reaches into the drawer and gives her a \$2.85 cash refund.

"Tactually made money on this trip," Harrison says, bearing as she heads for the door. "A dollar and eight cents." Dutside, she begins transferring the day's hauf into the back of her Hyundar Tucson. First she has to clear away a cache of Nestle Aquapods: \$3 on sate from Food Lion, yielding a \$3 Aqua neyman to Grand Master. These ranks are earned through such painstaking labors as scanning newspaper inserts, complising data from these ads into easy to read text and posting deals that moderators deem worthy of inclusion in the Hot Deals forum.

The users themselves are as diverse as the sites they populate and the stuff they buy. Jeffrey Tan, whose nearly 44,000 posts as: yuagotserved make him one of SlickDeals". top contributors us an IB-year-old college freshman in New York City who spends an hour or two every morning skippming and posting new deals from Newegg.com Deit com and Sears.com. The user 5 owtech oversees a team of people who reply to queries and write up summaries of threads related to Target. Cathy Zeiler, akalladycat, accesses SlickDeals daily through her dial-up modern. Once a week, she fills her munivan with groteries and distributes them. to as many as six low income and out-of work families near her home in Wichita Falls.

Texas. "I always did sales, but not like this," she says. "The Internet gave me the resources to take it up a few revels."

In some cases, retail backers take an attitude toward their targets that is at erany paramilitary. Every year Dev Shapiro, the 31 year-old moderator of the Black Friday boards at GottaDeal.com, plots a map of his own favored prey, the Best Buy store a few miles from

his house. Starting as early as the Monday before Thanksgiving, a full 100 hours in advance, Shapiro arrives at the store to set up his base camp: tent, propane stove, repted Porta Potti. ("I charge a buck a dump." he says. "It pays for itself.")

Using live recon from inside the store and informationgleaned from GottaDeal--which starts posting leaked Black Friday circulars from major retailers as early as August he draws up a plan of attack. He merges his personal shopping list with those of several friends, who join him during the final hours. of his vigl. When the doors open, his team moves with the deadly swiftness of a Specla. Forces raid one man to the laptops. another to GPS systems, another to the DVDs. another to the Blu-rays, and so on. One year Shap to brought home three GPS units a ug ta camera, four loptops, three flasscreen TVs. and several gigabytes of RAM-nearly \$10,000 in merchandise at face value, for iess than \$1,500. "Black Friday as all about information and advance plantiline." Shapiro

"You'll see that I'm putting my coupons in two stacks—slow me down if there's anything you don't understand."

from a nearby Food Jion. The bardodes on he Food Lion b. Invies start with 5, Harrison explains, and these will double this week. the Harris Teeter blinkies start with 9, and these won tidouble.

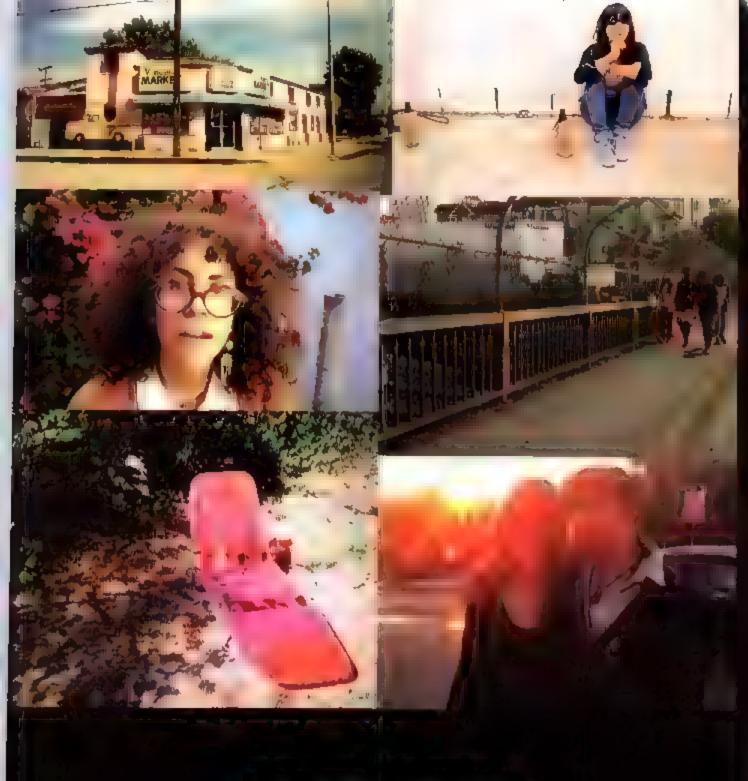
In assell Harrison grabs a can of Hanover Indiney beans, free with a coupon Hanover sent her after she left a positive comment on its website- a gesture she tries to make for some company every day. Her envelope contains seven more coupons obtained throughout ne compriments, as well as four from a ConAgra Foods booklet. 13 cupped from newspapers, and one Internet coupons found via a post at Hot Coupon World.

Harrison is moving quickly now, like a Pac Man master running patterns through the maze. The envelope emptred and the cart filled, she pulls up to register 6 and a fam: sar face. Jennifer K., an associate in her early twenties.

"You want me to send em cown?" Jen rufer asks, as Harrison loads the conveyor "Yean, I'll bag for you," she repries. pod coupon which she rolled a couple of times. Facing Harrison's van is a black SUV. A todd er warts in an empty shopping carl while her father loads groceries into the backseat, too busy to notice when his cart and child—begin to roll slowly, then faster down the parking lot's gentie slope toward a parked car. It takes less than three seconds for Harrison to assess the scene, dart past the front of her Tucson, and make the save.

Happens to me all the time!" she says to the father before he has time to thank her

There are millions of Michelie Harrisons out there, finding one another—and training one another—through the vast online network of deal hunting sites: GottaDeal, RetailMoNot Buxr Hot Coupon World WebseCoupons, and many many more. On the largest of these, SilckDeals, users flock to subforums that trade deals and tricks for every major national or regional chain. Users collect reputation points and move up through 10 levels—from Learner to Jour-



FAKE LOVE

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says. "You have to know where to be when."

Shap ro's take-no-prisoners approach to shopping is, on one level, a holdover from his profession: He makes his living as "director." of constics and intelligence" for Congregational Security, a Dallas-based firm that specializes in protecting places of worship from errorism and financial crimes. Shopiro's iob, as he describes it, is to analyze threats. He speaks Hindl, Hebrew, and Arabic, which he ises to scan online message boards. frequented by all Odeda. He says he has worked with former Mossad officers to truin parking lot greeters and arranged for bomb an ffing dogs to scour the hotels of visiting foreign dignitaries. Most of thus work happens at a deak a few feet from a rumpled likes bed in his parents' ranch house in subtirban Dalas, a life that seems equal parts James Bond and Seth Rogen, "I get to play with cool toys, and aget to learn," says Shap ro, who an received training in 9-millimeter comantishoot, reland artical private maneuvers. "My job is about being propared."

But the hyper-disc suited assault is also, no reasingly, the approach taken by all online deal hunters—everyone from college students to urban professionals to suburban mothers like Harrison. With anxiet exaggravated by the recession and ampilied online, they are exploiting information and employing coordination to dictate what they want to buy, how they want to be treated during the transaction, and what they're will have pay-

Until recently, coupons have almost arways been designed to advance the interests of seliers, not buyers. As structured by retailers and monafacturers, coupons will offer the tall manifection of inducement necessary to spur the sale. Perhaps the most revolutionary aspect of the Groupon model. is that it begins with the collective buying power of the aud ence whose sheer numbers and proven eagerness to buy-give the startup enormous leverage with retailers. As a result. Groupon and its competitors are reimagining the coupon as a tool for dragging prices down to unprecedented ows -not a few bucks off a strigle product. but 50 percent off restaurant bus, haveuts. museum tickets, and Jeans from the Gap Groupon keeps a fundant of this halved price; the benefit to the vendor comes from exposure on Groupon's voluminous email ifst, as well as the rush of new customers who will

flood through the door Groupons in hand.

For vendors, the hope is that enough of these deal seekers will convert into regular buyers to justify giving up three quarters of the revenue from the rifes, visit. For customers, though, it is a whole new way to look at shopping. It encourages impulsiveness and experimentation, homessing the ever shifting gametike terrain of the online deal scape, offering users not just

businesses, for their part, have complianted that Groupon represents consumer interests too aggressively, attracting hordes of deal hungry customers who never appear again. Some users are complaining, too of long lines at events and small businesses that can't handle the surge in traffic. Businesses that can't handle the surge in traffic. Businesses, allowing merchants to set a cap on the number of Groupons for each deal and

Groupon and its rivals are reimagining the coupon as a tool for dragging prices down to unprecedented lows.

a collective price but a collective buying experience. After purchasing a Groupon, users can reliant to the site and trade stories of their adventures in reliant. They get the same cycle of communal chasing and giouting offered by a testile. Spick Deals and Gotta Deals without the hard work of rincking down deals and negot at ingin resultance in a sales term handles at the

Andrew Mason, Groupon's CEO, doesn't love an office. He rooms around the company's downtown Chicago headquarters. which are spread across multiple floors of a converted ware rouse on the Chicugo River. Even as Groupon has grown to nearly 2,700 employees, and a main noth. valuation of more than \$1 or non), Mason has kept his corporate culture even hare. casual and astentatiously weind than his Si icon Valley counterparts, When I visted the offices, managers were leading a group of new employees through an elaborate a terrate reality game that involved cutting open teddy bears with kn. ves. The game even has its own office, at the end of a row of sales staff - a place called Michael's Room containing a bed with scorched blankets and a toilet filled with candy.

As divergent as such stunts might seem from Groupon's core business, Mason believes they share an essential aesthetic—they're "purposefully random." To his mind, the most effective coupons aren't the ones that save you money on things you'd buy anyway: they're the ones that come from out of nowhere, giving you icense to buy something you otherwise wouldn't. Some

refunding money to dissatisfied customers.

Because Groupon does all the work for its users—finding the business, regotiating the deal, delivering the coupon—it doesn't cutivate in its users the expertise of deal hunters as Shapiro and Harrison. Groupon users are not huckers: they're ordinary consumers who, instead of performing their own laborious research, trust Groupon to act as an honest broker on their behalf. This isn't so different from the traditional retail model in which the consumer is dependent on the vendor and happing buys whatever's on said

it's easy to imagine this pointing toward a by ghter future, with the technologically enhanced, customer-friendly couporsuphorang larger and larger shares of promotional budgets directly into consumers. pockets. One can also imagine an alternate scenario, where deep-discount online coupons turn into a last-ditch measure for busitesses that can't draw enough traffic with heir asking price. Larger retailers could even grow wise to the latent tracking possibilities of on the coupons and comb purchase histories to further manipulate our behavior. But regardless of how this technotogical arms race ends, it's clear that the old method of unanteral pricing, with consumers growing around in the dark for the real discount can't possibly survive. The deal-hanting horde has the tools to ensure that no bargain stays secret for long, 🛄

wart schwartz mattachiesschwartz .com) wrote about a Korean financial biogger in issue 17.1.

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Insane Clown Posse

from ICP's worn formula of righteous viasence and sixth-wrade sex brags, and what ever plot points these songs contain are either dog whistle fant or nonexistent. Yet the Corp. val's inscrutability has only drawn fans deeper and its long-form are was seemmake for the Internet, where Juggalos devote entire websites to the Dark Carmyal. looking for cases in ICP's steady stream of biog posts. Whether one sees the Carnival as a feat of proto-2 ist-century storytelling. or samply a long-con gimmick-in trith it's probably both-it's proven to be an inexhaus able franchise. To Juggalos, the Carn val's carroon muscots are as scome as the Grateful Dead's dancing bears or from Maid en's Eddie, and they're emburgoned on every thing from ski masks to lighters (of course. even the Greatful Dead and Iron Maiden don't. have anything like the ICP Dark Carnivalthemed board game The Quest for Shangri La). Not surprisingly, after the first senies of cards was exhausted -- a process that took six a, burns and 10 years-1CP announced the beginning of a second Joker's Deck.

For those who'd been paying attention to the Dark Garnival al. along the thinly veiled spirituality of "Miracles" made per fect sense. On "Thy Univeiling," a song from 2002's The Wraith. Shangri-La. ICP revealed that the Dark Carnival—much like Lost—was al. about fidding heaven. Truth is we follow God., We've always been behind Him. The Carnival is God, and may all Juggalos find Him!"I was intent to believe there was a God, a heaven, and a hell," Bruce says. "We got the ears of all these Juggalos. What do we want to say? We wanna say, 'Go to heaven. Don't fuck ap,' I wanna see Juggalos in the afterlife."

To get an idea of what Juggalo heaven would look like, you must burrow through deep woods to an isolated campground at Cave-In Rock, an aptly named village near

the Illinois Kentucky border After several long, desolate stretches of road, all tethers to the outside world start to break away. Cell phone bars shrivel to mere rubs, like an unfinished game of hangman. Luckily, to find the Gathering of the Juggalos, all you need to do its listen for the whoops. They can be heard from the edges of the campate and come in three varieties.

"Whoop-whoopooUP* The longest, most celebratory whoop heard at the Gathering, often performed en masse. It usually denotes a special occasion, such as a Psychopathic artist wallong through the crowd or a woman removing her top.

"Whoop: Whoop!" The most common whoop, one heard frequently as Juggalos pass one another in large groups on foot or in rented 20-carls.

"Whoopwhoop." A slightly less enthused sounding whoop, its force hampered by the effects of drowsiness, sunstroke, or weed

Despite the constant auditory stimuli, the Gathering is, in some ways, aggressively mel low This is a bit of a revelation, given that an ICP-sponsored documentary. A Family Underground portrays the event as a cavalcade of backyard wrestling brawls and portial nudity. These do exist, as does an open parcotics market, called the Bridge. where revelors peddle everything from potto eastasy to coke (the park is private property, so no cops are allowed). And things get more ominous at right, when the combination of drugs, face paint, and rented wheels turns the Gathering of the Jugga los into something resembling a Cormac McCarthy designed game of Mario Kart

But at times the event is downright family friendly. During the day, Bruce emcees a Beach Boys—themed dance party Entire families line up to get ICP jerseys (and even pregnant belies) signed at the autograph tent, while Joggalos cavort on a dock atop a body of water so nastylooking that it's been dubbed Lake Hepatitis. And of course there's the music, with artists like Naughty by Nature and Warren G (plus the occasional throwback like Vanilia Ice or stand-up-comic Gallagher) performing late into the right. And if you get bored, you can always look for the kid with the sign that reads will EAT BUGS FOR \$,

Despite a sizable population of female fans (dubbed Juggalettes). ICP's following is made up mostly of young white men from working-class backgrounds. They tend to

feel that they've been misunderstood outsiders their whole lives, whether for being overweight, looking weard, being poor, or even for just liking ICP in the first place. It's a world where man boobs are on proud display, where jong-hairs and pink-hairs mingle where nobody makes fun of the fat lod tow eling off near Lake Hepatitis, For them, the Gathering is a place they can be accepted. a feeling reinforced by the constant chants. of the Juggalo credo "Fam-uh-LEE" Fam-uh-LEE!" "You're surrounded by people who love you," says Corey Lewter, a 23-year-old from Algoriquin, Illinois. "Even though we've never met each other, we al, relate." Adds Nick Wolff a 20-year-old prep cook from Willowbrook, Illinois, "We re all family, no matter what race, color weight, whatever."

Like most Juggalos, Wooff and Lewter began fistening to ICP as teenagers, and anyone perpiexed by the band's continued success would do well to recal) just how alterating those years can be Bruce and Utsier haven't forgotten this pain. Though the Gathering hosts a massive merch tentcomplete with \$350 leather jackers and an on-site ATM - the group is really solung an off-the-tack socia- identity: Instant entrée to a band of outs ders It's an image ICP pushes constantly, pumping otherness with its MOST RATED BAND T shirts and middleof nowhere confab, and it's undoubtedly the single biggest factor in ICP's success. With so many artists pitching a lifestyle of aspirational fabulosity, ICP empls the virtue of average-shmo ega.ltarianism, even f the actual ICP members don't live an entirely down-and-out life these days.

Put all of these outsiders together with a heaping dose of us-versus them and you have a tried and true formula for creating an insular subculture—just ask any tea partyer. And at the Gathering there really is a sense of unity. Until there isn't

Late on the second night of the fest val, reality TV star Tha Tequila makes an appearance on the Gathering's "Ladies". Night" stage. Throughout the day, there were rumors that Tequila was going to be attacked by the crowd—despite Bruce and these asking everyone to leave her alone. Yet within numbers of taking the stage. Tequila is pelted with debris, chairs, and even feces from an outhouse. She removes her top, hoping to win over the crowd, but is forced, after being bloodied, into a retreat. The event played out on TMZ and MTV for days.

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IN 3D DECEMBER 2010



Why was Teg. I a persecuted while the kes of Varilla Ice were cheered? It's hardto say. Some claim Tequila was mocking. ICP on her Twitter feed by spelling clown with a ki Others see her presence as evadence that the mainstream after years of not caring about what the Juggalos did out here in the woods his intruding upon the Gathering, either to poke fun af it or to fleure out how to market to it. But the truth .s. for the ICP formula to work there has to be a "them" - and in this case, them is an admitted y grating (but thoroughly harmessipublicity seeker, one who maybe acts. al: tle too much like the girl who wouldn't date you in high school.

The incident presents an interesting dilemma for ICP, especially as its profile increases: The Gathering is intended as an open tent party in fact, that all inclusiveness in glit be its bigges draw greater even than the music and the drugs. So what happens when the crowd gets too unruly? If Bruce and Jisser start to, ing Juggalos what they can and can't do, they risk coming off like just another set of uncaring adults. Bruce waves off siich concerns, Just because he in d'Utslor created the Juggalos doesn't mean they have the power to control them. "We don't lead them," Bruce says. "Juggalos lend us."

Two wasks after he Gathering, Bruce is guiding his black SUV through downtown Detroit pointing out sites from ICP's history. We pass through the city's southwest neighborhoods, where ICP—then called linner City Posse—got its start in the early POs. With each block, the arban landscape becomes more grim. A brand-new chain pharmacy gives way to homes that have been hollowed out by fire leaving behind nothing but piles of rubble and a few brick walls. As we drive, rare Michael Jackson ballads trickie from Bruce's car stereo, part of his massive MJ archive.

We eventually end up at the entrance to Zug Island, an industrial atoll in the middle of the Detroit River owned and operated by US Steel. There's a no it respects to without trouble arriving at an actrid-smelling stretch of land with danes of coal and twisted metal intestines that stretch across a skyline of egg-white smoke. This is the place ICP cails home even though Bruce and Utsler didn't grow—phere

They met as teenagers in the surrounding suburbs. Both had difficult upbringings and their fathers left their family when they were young. "Every night was a fuckin party," Utsler says of his childhood. "Drinkin, smokin weed It turned out to fuck me up in the long run." A recovering alcoholic and drug addict he's been in and out of trouble ever since he recently beat a rap for a concealed weapons charge. Bruce's childhood was arguably worse. In Behind the Paint, he details how his father left with his family's money, forcing them to subsist on welfare. He and his siblings were then sexually abused by their first stepfather.

After becoming friends, Bruce and Utsier would come to Southwest Detroit to hang out eventually moving here after dropping. out of high school. Though they dreamed of secoming pro wrestlers, they soon took up rapping, using a boom box to record their eartest sonus, which were heavily indebted to realinging base sound of West Coast gargera rappers ke NWA Eventually hey hit on the des of wearing clown makeup—inspired by nightmares Bruce used to have about heing. visited by a scary clown-which heiped them standout in Detroit's burgeoning rap scene Few took them seriously. But Bruce and atter hustled day and night, putting up flyers throughout Detroit living out of Kinko's. and hand de woring their albums to every store they could. The duo worked with several major labels over the years, but those deals all demiled So ICP gave up on the established. record industry and soldiered on doing every thing themselves. Along the way they discovered legions of outsiders and rejects who couldire ate to a struggling, downtrodden act that the establishment wouldn't accept

"We represent those under the under dogs," Bruce says. "We represent scrubs." As proof, he motions for Utsler to lift up his shirt, revealing a large stomach tattoo that reads shall life. aspoof of Tupac Shakur's infamous thus. If foredo.

ICP's do-it-yourself ethos is on display in Bruce's home studio as he and Utslend: gen, y work on a session with Axe Minder Boyz, two twentysometh: ngs from Deaver who are signed to one of Psychopathic's subsidiary labels. Bruce and Utslendevelop their artists personally, often helping to pick names, determine a look, and occasionally cowrite songs. It can be a lengthy process: Perfecting the southern-goth scarecrowlook

for Boondox, for example, took six months.

Figuring out how to promote Axe Murder Boyz hasn't been that easy. After at first packaging hem as bum-rushing thugs, Bruce is now trying to moid AMB as a sort of Juggalo counterpart to Outkast with one member dressed an a constantly changing array of fight colorful violage shirts, while the other wears more traditional gangsta garb. For an hour, he larges them to just be themselves. Then he suggests they record an elaborate Jerry Springer parody. It's hard to tell whether the Boyz are quietly mulling over the idea or merely hoping Bruce is so high he'll forget about the whole thing come morning.

in a few months, ICP will be back in the stud o recording the next installment of the second Joker's Card deck, But before that, the part plan on using the "Miracles". momentum to push a bunch of new projects. There's the possible VHL show, though Bruce is wary of appearing on some Hogan. Knows Best- style reality series . There's a tot that a mysterious about us," he says, "If all of a sunder we were on some stupid real ty show fans would be like, 'Why have I not these assholes tartoord on my back? ") Then there's the wrestling school, which Bruce will use to host free matches. In many ways, it's the typical insure Clown. Posse endeavor a counter nout ve, financially iffy brand enhancer that it, be macked. by critics, loved by fans, and by it without any he p from the outside. And the merch section will be hage.

"I know for a fact that we re nowhere near where we're going "Bruce says. We're sit ting on the front porch of his house I stening to the midday cleadas. "You believe in The Secret?" he asks referring to the best seiling New Age self-help book. "We're firm believers in that shit man. Something big's going happen. We're so sure of it that if my buts were in a guillotine right now, I'd bet we haven't seen our best days."

A few manutes after. Utsler points up to one of the giant trees over Bruce's front patio. Way up high, easily 15 feet a todwer's plastic car 15 wedged in the branches. It looks Ke it was displaced by a hurricane

"How the fuck did that get up there?" Utsler asks.

Bruce shrugs, Just another miracle

Contributing editor Bhian RAFTERY

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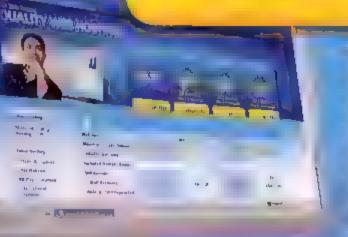
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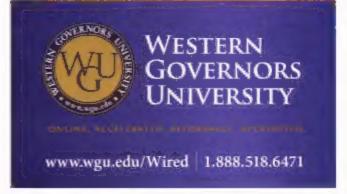
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